

Survey of Oil-Fired Utility Boilers

Potential for Coal-Oil Mixture Conversion

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Abstract

This report has evaluated the significant factors pertaining to existing utility boilers which are currently burning fuel oil, and has analyzed the potential for conversion to COM technology. Detailed statistics for all utility boilers in the United States which are currently oil-fired have been compiled from published data and files. Critical boiler features and system characteristics are tabulated on a unit-by-unit basis. Distributions of age, size, location, and attainment status are included, along with a discussion of boiler types and designs. Other data relevant to fuel conversion are detailed, such as fuel consumption, capacity factor, and applicable state and federal energy and environmental standards.

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Executive Summary

The objective of this study is to determine the significant factors pertaining to existing utility boilers which are currently burning fuel oil, and to analyze the potential for conversion to coal-oil mixture (COM) technology. Detailed statistics for utility boilers in the United States which are currently oil-fired have been compiled from published data and files. Critical boiler features and system characteristics are tabulated on a unit-by-unit basis. Distributions of age, size, location, and environmental status are included, along with a discussion of boiler types and designs. Other data relevant to fuel conversion are detailed, such as fuel consumption, capacity factor, and applicable state and federal energy and environmental standards.

A large volume of data has been extracted from a variety of sources and compiled into this document. Most of the base data have been reported in the appendices and will be useful for readers who are looking for specific boiler information. Summaries and analyses of the base data are reported in the main body of the report.

Analysis of the compiled data shows that there are approximately 220 utility boilers with a total capacity of 30,165 MW which are coal-designed boilers currently burning oil. Boilers which are under prohibition to reconvert to coal as a result of the Energy Supply and Environmental Coordination Act (ESECA) of 1974 have been excluded from this estimate except for 4243 MW which are still burning oil. More recent legislation such as the Powerplant and Industrial Fuel Use Act (FUA) of 1978 and the administration's proposed oil-backout legislation may affect these estimates as this legislation becomes operative. The Atlantic Coast Region (Federal Regions I through IV) contains most of the coal-designed, oil-fired capacity (approximately 81%).

In addition to the coal-designed boilers currently firing oil, there are 245 utility boilers with a total capacity of 63,279 MW which are oil-designed and firing oil. By comparison to the coal-designed boilers, the Atlantic Coast Region contains 51% of the oil-designed capacity. In addition, the data show that 65% of the oil-designed boiler capacity is concentrated in the states of California, Florida, and New York.

Forty percent of the coal-designed boiler capacity are greater than 200 MW in size, whereas 80% of the oil-designed boiler capacity is greater than 200 MW in size. Furthermore, the oil-designed boilers are larger in size relative to the coal-designed boilers. Overall, there is a significant integral capacity of large-sized boilers which generally favors economy of scale for conversion.

Fifty percent of the coal-designed boiler capacity and 83% of the oil-designed capacity are less than 20 years old. Therefore, it can be concluded that significant capacities are younger than the boiler half-life, providing a favorable situation with regard to life cycle conversion costs.

As regards the location of utility boilers in nonattainment areas, only a small percentage of oil-designed and coal-designed utility boilers are located in areas which have been designated as nonattainment for SO₂ by the EPA. (An area is designated as nonattainment if the primary National Ambient Air Quality Standard for a particular pollutant is not satisfied.) Also, there is only one utility boiler which is currently located in a nonattainment area for NO₂. However, approximately 25% of the coal-designed boiler capacity and 45% of the oil-designed capacity are located in nonattainment areas for total suspended particulates (TSP). Therefore, statistically, particulate control appears to be the more significant regulatory need. However, particulate control technology is well developed and accepted by users and regulators so that the availability and acceptability of this technology is not a significant problem as it is with regard to flue gas desulfurization (FGD). This does not mean that FGD will not be required for conversion, but that the granting of regulatory permits for conversion will be more readily allowed in the SO₂ attainment areas. Conversion to COM or coal, in itself, is not regarded as a modification subject to Prevention of Significant Deterioration (PSD) or nonattainment regulations. However, an increase of emission rates relative to existing emission rates may cause a conversion to be regarded as a modification, consequently subjecting the facility to PSD and nonattainment regulations.

Investigation of the oil-designed boiler characteristics indicates that there are two general types: Type 1, which has characteristics closer to coal-designed boilers; and Type 2, which is distinctly different from coal-designed boilers. Approximately 65% of the oil-designed capacity is Type 1 and 35% is Type 2. This division of capacity favors boiler designs which are less risky conversion candidates.

Based on the factors which have been statistically analyzed, the conversion of oil-designed and coal-designed utility boilers to COM appears to be a practical undertaking. Final conclusions will require evaluation of specific sites. The most opportune period for conversion is probably in the next 10 years when the impact of conversion to COM technology may be most significant.

If it is assumed that 50% of the coal-designed and oil-designed capacity are converted to a COM of

40% coal concentration, the oil which will be displaced is approximately 103×10^3 bbl/day for the coal-designed boiler capacity and 217×10^3 bbl/day for the oil-designed boiler capacity. The total displacement of oil for the utility sector is approximately 320×10^3 bbl/day. Furthermore, in addition to the utility sector, there are the potential industrial boiler and process industry conversion markets which have not been addressed in this report.

1.0 Introduction

The objective of this study is to determine the significant factors pertaining to existing utility boilers which are currently burning fuel oil, and to analyze the potential for conversion to coal-oil mixture (COM) technology. Detailed statistics for utility boilers in the United States which are currently oil-fired have been compiled from published data and files. Critical boiler features and system characteristics are tabulated on a unit-by-unit basis. Distributions of age, size, location, and attainment status are included, along with a discussion of boiler types and designs. Other data relevant to fuel conversion are detailed, such as fuel consumption, capacity

factor, and applicable state and federal energy and environmental standards.

These factors have a significant effect on the technical and economic feasibility of conversion to COM or alternate fuels. The extent of boiler modifications and costs vary depending on specific boiler design characteristics. Factors such as boiler size and age determine economy-of-scale and life cycle conversion costs. Boiler locations and distributions determine market concentrations, proximity to fuel resources and transportation modes and availability.

2.0 Data Content and Organization

A large volume of data has been extracted from a variety of sources and compiled into this document. Most of the base data have been reported in the appendices and will be useful for readers who are looking for specific boiler information. Summaries and analyses of the base data are reported in the main body of the report.

In particular, tabulation has been made of all boilers in the continental United States which are currently oil-fired. Boiler population data are based on the Department of Energy's "Generating Unit Reference File" (GURF), also known as "An Inventory of Power Plants." The large boilers (capacity equal to or greater than 50 MW) which use fuel oil as the primary fuel for steam generation are tabulated according to state and regional location. The fuel for which the boiler was originally designed was not reported in the GURF. Several other references were checked to determine the original design fuel (PED-Co, 1976, 1977; Edelson, 1976; National Coal Association, 1979).

Appendix A lists the names of all the utilities which have been identified as having oil-fired boiler capacity by Standard Federal Region and state. Appendix B tabulates for each boiler the company name, plant identification, unit number, primary fuel, alternate fuel, nameplate capacity (megawatts), SO_x control method, TSP control method, Air Quality Control Region (AQCR) number and the county in which the unit is located. Appendix C documents for each boiler the fuel consumption, capacity factor, and attainment status relative to the National Ambient Air Quality Standards (NAAQS). Appendix D shows the coal-designed capacity, oil-designed capacity and total utility capacity by Standard Federal Region, state and utility. Appendix E gives the state emission requirements and state air quality standards by Standard Federal Region for each state. The state air quality standards are reported only if they differ from the NAAQS. Finally, Appendix F shows boiler age and size distributions according to boiler design (coal or oil) and Standard Federal Region.

3.0 Number of Boilers and Capacity

The statistics regarding number of utilities, power stations, boilers (or units), and capacities are shown in Table 1 for boilers originally designed for coal, and currently burning oil. The same statistical data are shown in Table 2 for boilers originally designed for oil and currently burning oil. The data are broken down by Standard Federal Region and state, and include only boilers greater than or equal to 50 MW in capacity. The states which make up the Standard

Federal Regions are listed in Tables 1 and 2 and also are indicated in the maps of Figures 1 and 2. The total stations, units, and capacities for both oil-designed and coal-designed boilers are summarized as follows:

- Utility boilers designed for coal, currently firing oil—86 stations; 220 units; 30,165 MW.
- Utility boilers designed for oil, currently firing oil—107 stations; 245 units; 63,279 MW.

Table 1
Summary of Utility Boilers Designed for Coal-Firing, Currently Burning Oil (≥ 50 MW)

Region*	State	# Utilities	# Stations	# Units	Total MW
I	CT	3	5	13	1,825
	ME	—	—	—	—
	MA	6	8	17	3,700
	NH	1	1	3	150
	RI	1	1	1	63
	Total	11	15	34	5,738
II	NJ	3	9	21	3,029
	NY	4	16	48	8,097
	Total	7	25	69	11,126
III	DE	1	1	4	392
	DC	1	1	4	200
	MD	1	5	12	1,233
	PA	2	9	16	1,946
	VA	1	4	14	1,950
	Total	6	20	50	5,721
IV	FL	1	1	4	618
	GA	2	3	7	491
	MS	1	1	1	781
	SC	1	1	2	100
	Total	5	6	14	1,990
V	IL	3	3	11	1,236
	IN	—	—	—	—
	MI	3	7	19	1,560
	MN	1	1	1	81
	OH	2	4	11	638
	WI	1	1	2	120
	Total	10	16	44	4,027
VI	AR	1	2	4	1,042
	LA	1	1	1	446
	NM	—	—	—	—
	TX	—	—	—	—
	Total	2	3	5	1,488
VII					None
VIII	CO	1	1	1	75
	SD	—	—	—	—
	Total	1	1	1	75
IX					None
	U.S. Total	42	86	220	30,165

*Standard Federal Region.

Table 2*Summary of Utility Boilers Designed for Oil-Firing, Currently Burning Oil (≥ 50 MW)*

Region*	State	# Utilities	# Stations	# Units	Total MW
I	CT	3	3	3	1,248
	ME	1	1	2	426
	MA	3	4	4	2,060
	NH	1	1	1	414
	RI	—	0	0	0
	Total	8	9	10	4,148
II	NJ	2	3	5	1,165
	NY	6	6	12	6,560
	Total	8	9	17	7,725
III	DE	2	2	2	580
	DC	1	1	3	633
	MD	3	3	3	1,236
	PA	2	2	4	2,482
	VA	1	1	2	1,727
	Total	9	9	14	6,658
IV	FL	10	26	54	12,656
	GA	1	1	1	163
	MS	1	1	1	548
	SC	1	1	1	633
	Total	13	29	57	14,000
V	IL	2	2	6	2,849
	IN	1	1	2	218
	MI	1	2	3	1,395
	MN	—	—	—	—
	OH	—	—	—	—
	WI	—	—	—	—
	Total	4	5	11	4,462
VI	AR	1	2	4	890
	LA	1	1	1	592
	NM	1	1	3	266
	TX	2	3	3	1,246
	Total	5	7	11	2,994
VII					None
VIII	CO	—	—	—	—
	SD	1	1	1	75
	Total	1	1	1	75
IX	AZ	3	8	15	1,616
	CA	8	30	109	21,601
	Total	11	38	124	23,217
	U.S. Total	59	107	245	63,279

*Standard Federal Region.

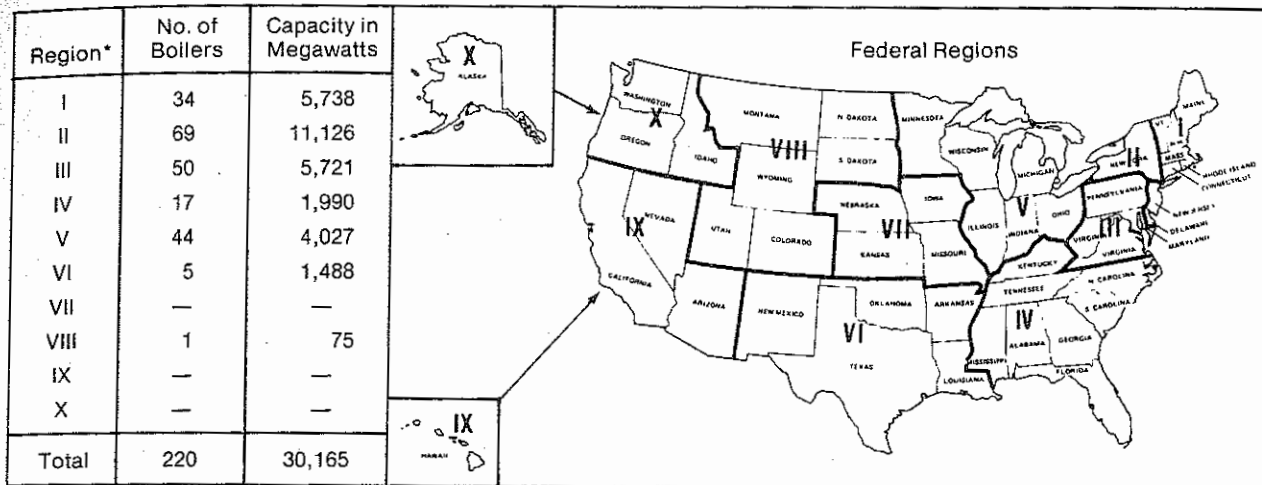
3.1 Geographical Distribution

Examination of Figure 1 shows that the largest concentrations of coal-designed boilers currently firing oil are located in Federal Regions I, II, III, and V. Substantial concentrations of capacity also exist in Regions IV and VI. Regions I through IV, which cover the Atlantic Coast Region, contain approximately 81% of the coal-designed, oil-fired boiler capacity. Region V, the Great Lakes Region, contains approximately 13% of the capacity, and Region VI, the Middle South, approximately 5% of the capacity. With regard to individual states, New York has the largest concentration of coal-designed, oil-

fired boiler capacity, followed by Massachusetts and New Jersey.

On the other hand, Figure 2 shows that the distribution of oil-designed boiler capacities is substantially different from coal-designed boiler capacities. Regions I through IV contain approximately 51% of the oil-designed, oil-fired boiler capacity, which is lower in percentage than the coal-designed boilers but higher in total capacity. Regions V and VI also contain capacities of oil-designed boilers which are comparable to coal-designed boilers. However, the major difference between the coal-designed and oil-designed capacity distributions is that Region IX has 23,217 MW, or approximately

(Boiler capacity greater than or equal to 50 MW)



*Restricted to continental United States; does not include Hawaii.

**Boilers which have received Notice of Effectiveness not included.

Figure 1
Regional Distribution of Utility Boilers Originally Designed for Coal, Currently Burning Oil

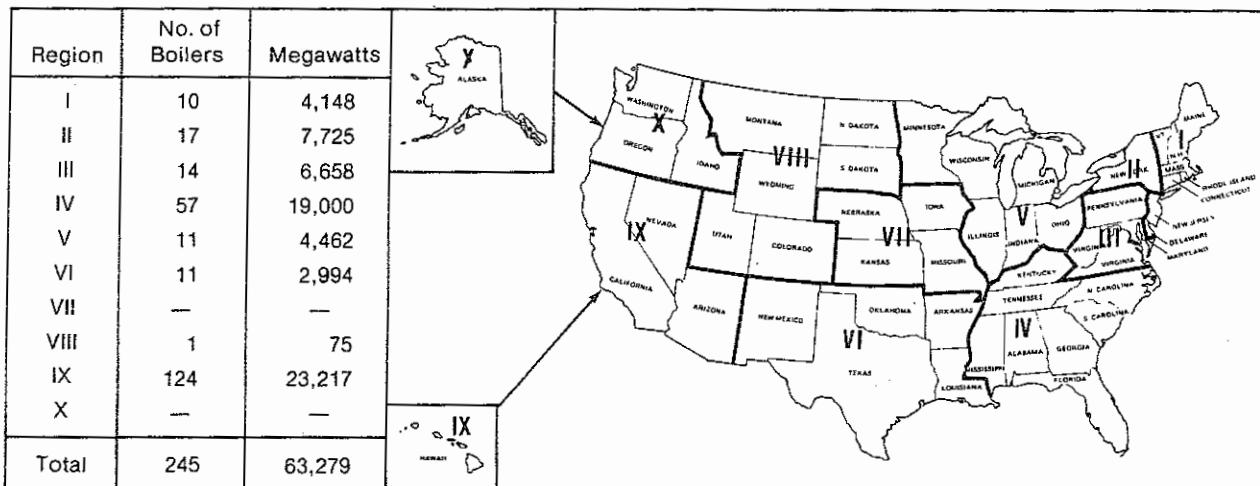


Figure 2
Regional Distribution of Utility Boilers Originally Designed for Oil, Currently Burning Oil

37%, of the oil-designed capacity although it has none of the coal-designed capacity. Most of the oil-designed capacity of Region IX is in California with 21,601 MW (35% of total oil-designed capacity). Florida is second in oil-designed capacity with 12,656 MW (20% of total oil-designed capacity) and New York is third with 6,560 MW (10% of total oil-designed capacity). These three states combined con-

tain 40,817 MW of oil-designed capacity which is approximately 65% of the total U.S. oil-designed capacity.

Distribution of oil-fired capacities among the utility companies is given in Appendix D. The data identify the utilities which have the largest oil-fired capacities and the percentage of oil-fired capacity to total utility capacity.

4.0 Coal-Designed Utility Boiler Statistics

Reconversion to coal requires a complete engineering study of each individual unit including a thorough analysis of available coals and available plant space. Meeting environmental standards for both sulfur and particulate emissions may be possible, but not always economical. The cost of reconversion for a particular unit varies depending on the specific problems encountered. Reconversion to coal should be given first priority because it displaces one-hundred percent of the fuel oil, although in some cases it may be impractical due to high capital costs and severe space limitations. One alternative is conversion to COM. In general, COM conversion requires less capital, less boiler downtime, and less plant space. More than thirty percent of the energy in oil can be displaced by using a mixture with 40 percent coal by weight.

Reconversion of a coal-designed oil-fired boiler to coal, COM, or other alternative fuel will be decided only after careful evaluation of all economic and technical factors relative to a particular unit.

4.1 Size Distribution of Coal-Designed Boilers

Table 3 shows a summary distribution of the coal-designed boilers in a matrix of size and age. Appendix F contains a breakdown of the summary data of Table 3 into a series of tables which show the matrix distribution for each of the Standard Federal Regions. Boiler size is divided into intervals of 100 MW except for the uppermost band which is specified for all boilers greater than 400 MW. Boiler age is divided into intervals of 10 years except for the oldest boilers which are specified in a band greater than 30 years.

The bottom line of Table 3, which shows the sum for each size interval, indicates the overall boiler size distribution independent of boiler age. Figure 3 is a graph of the overall size distribution as a cumulative percentage of total coal-designed capacity. This graph shows that approximately 40% of the coal-

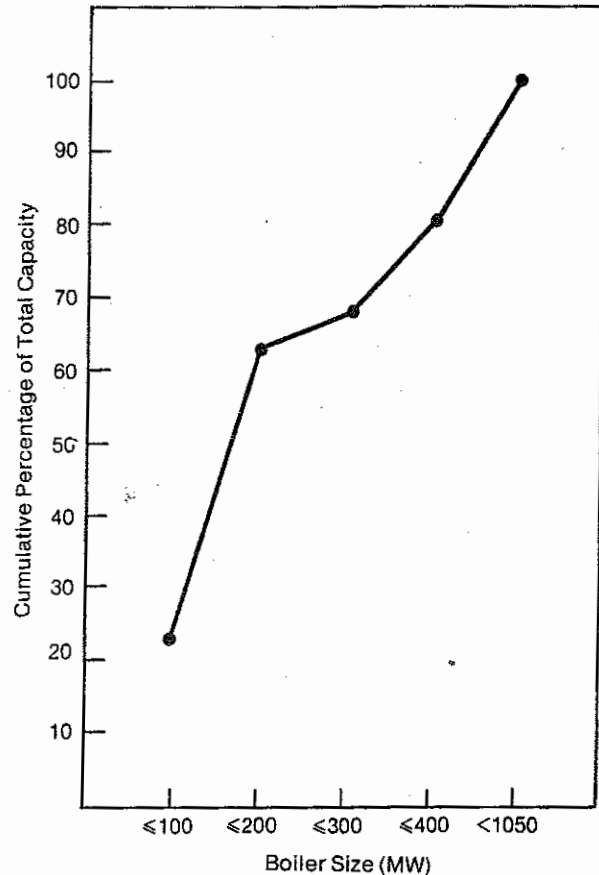


Figure 3
Overall Size Distribution of Boilers Designed for Coal

Table 3
Age and Size Distribution of Coal-Designed Boilers: All Regions Combined

		Size Interval (MW)										Total	
		≤100		>100≤200		>200≤300		>300≤400		>400			
		No.	MW	No.	MW	No.	MW	No.	MW	No.	MW	No.	MW
Age Interval (Years)	≤10	—	—	2	296	1	202	1	358	4	2405	8	3261
	>11≤20	5	369	22	3716	7	1647	10	3673	4	2600	48	12005
	>20≤30	51	3386	44	6042	2	513	1	358	—	—	98	10299
	>30	54	3391	9	1209	—	—	—	—	—	—	63	4600
	Total	110	7146	77	11263	10	2362	12	4389	8	5005	217	30165

designed capacity derives from boilers is greater than 200 MW in size. Also, a substantial fraction of the coal-designed boilers (approximately 16%) is greater than 400 MW in size. The average size of boilers in this upper size range is 625 MW. At the low end of the size spectrum, approximately 24% of the total capacity derives from boilers between 50 MW and 100 MW in size. The average of boilers in this band is approximately 65 MW.

Figure 4 shows graphs of coal-designed boiler size distributions for the various specified age intervals. This family of graphs illustrates that the older boilers are smaller in size and, correspondingly, the younger boilers are larger in size.

4.2 Age Distribution of Coal-Designed Boilers

The operating life of a utility boiler is approximately 40 years depending on the experience of the particular utility. Therefore, the time period for retrofitting of existing boilers is finite and lies within a window defined by the year when COM or some other conversion technology becomes commercialized to the time when the newest existing boiler is retired. The expected period of conversion lies approximately between 1983 and 2010. However, the most opportune period for conversion is probably in the next 10

years when the impact of conversion to COM technology may be most significant.

The remaining boiler life is the difference between the expected boiler operating life and the boiler age. Boilers with longer remaining life have a lower amortized capital cost for COM conversion. Therefore, a newer boiler (less than 20 years old, for example) is more profitable to convert than an older boiler.

For these reasons, boiler age distribution is an important statistic to examine. Figure 5 shows the overall age distribution of coal-designed boilers. The largest increments of total capacity fall within the age intervals of 11 to 20 years and 21 to 30 years. The distribution is nearly symmetrical with the capacity less than 10 years old approximating the capacity greater than 30 years old.

Figure 6 shows the cumulative percentage of boiler capacity as a function of age. An important statistic is that over 50% of the coal-designed capacity is less than 20 years old, representing a significant target for conversion within the next ten years. Boilers more than 30 years old will have low probability for conversion.

Figure 7 shows the regional distribution of capacity separated into boilers less than 20 years old and greater than 20 years old for the coal-designed boilers. The largest integral capacities of boilers less than 20 years old are in Regions I and II. Substantial capacities of boilers less than 20 years old also exist in Regions III, IV, V, and VI, and are nearly evenly distributed in capacity over these regions. Furthermore, in substantiation of Figure 4, the younger boilers (<20 years) are, on the average, two to six times larger than the older boilers within the respective Federal Regions.

4.3 Air Quality Considerations

An increase or change in the emission of certain atmospheric pollutants may occur as a result of conversion from oil to coal or COM. Units that undergo conversion or modification to accommodate an alternate fuel would still be required to comply with applicable federal, state, and local ambient air quality regulations and state and local emission regulations, even though, in the case of COM, boilers would not have to satisfy New Source Performance Standards. The federal government has established National Ambient Air Quality Standards (NAAQS) which limit the time-averaged concentrations of criteria pollutants in particular areas designated as Air Quality Control Regions (AQCRs). These standards are shown in Table 4.

An initial step in implementing the NAAQS was to require the states to determine existing air quality in each AQCR on a pollutant-by-pollutant basis. Well defined areas within an AQCR can receive a different classification than the entire AQCR region. This is done primarily to control pollution in highly industrialized or urban problem areas. These classifications are based upon monitored air quality data, as well as other data obtained from air quality dispersion modeling.

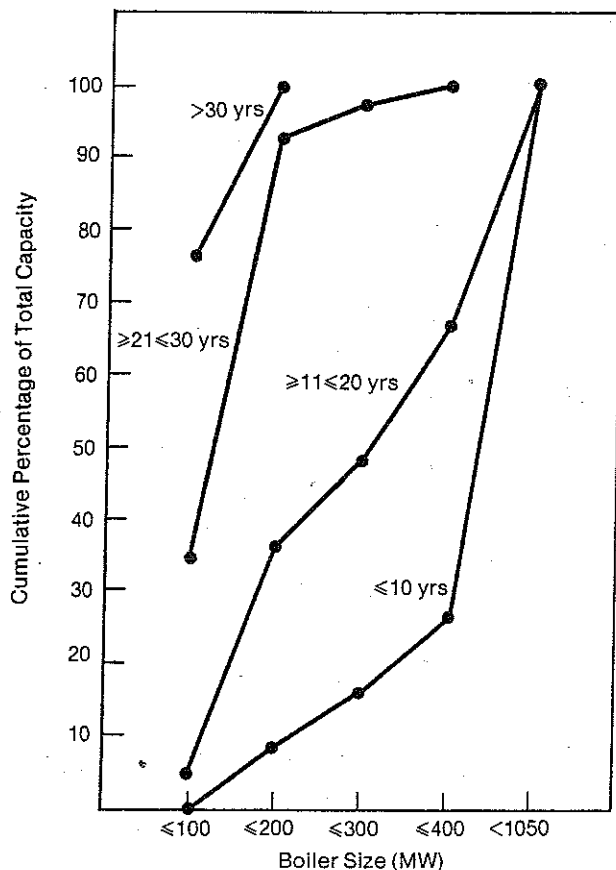


Figure 4
Size Distribution of Coal-Designed Boilers
for Various Age Intervals

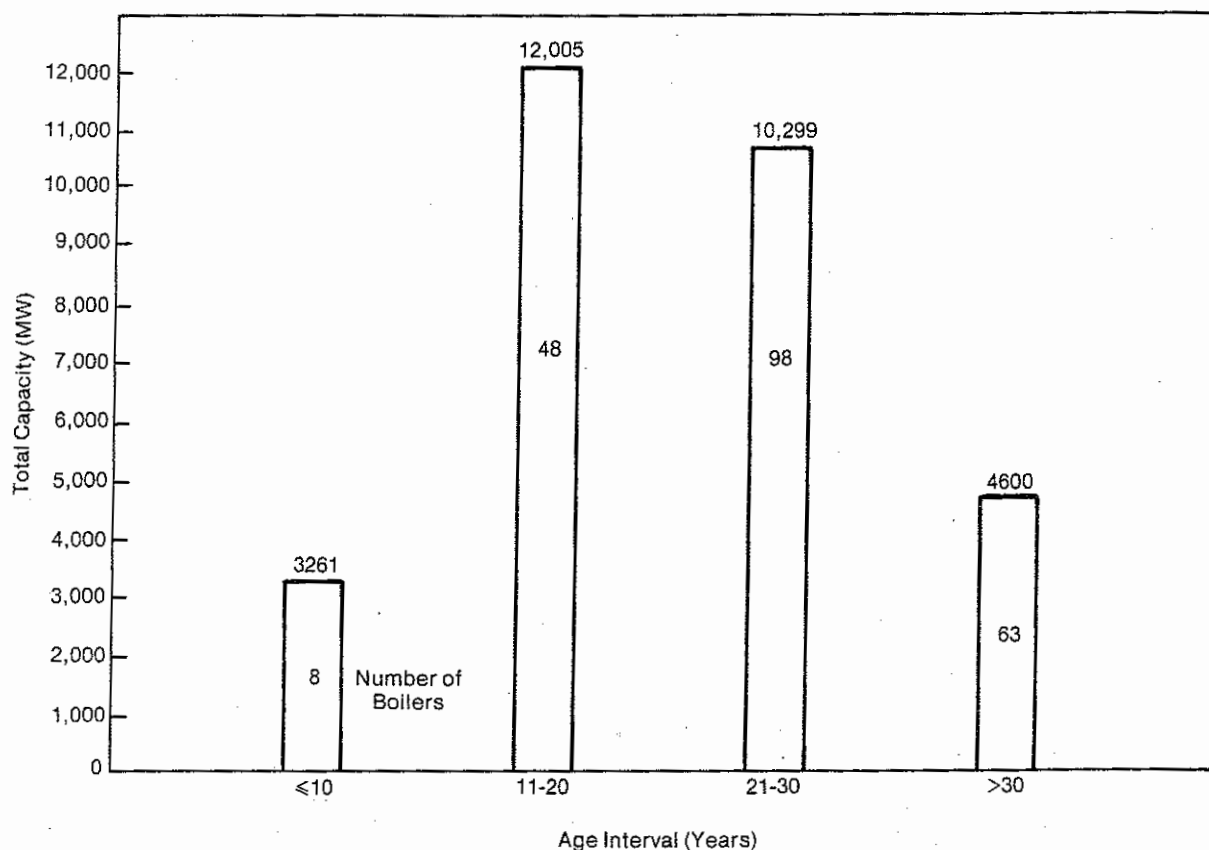


Figure 5

Overall Age Distribution of Coal-Designed Boilers Currently Burning Oil

In this study, examination was restricted to only those pollutants which are of primary concern in fossil fuel fired boilers, namely, total suspended particulates (TSP), sulfur dioxide (SO_2), and nitrogen dioxide (NO_2). For both TSP and SO_2 , an area may be classified as: (1) not meeting the primary NAAQS, (2) not meeting the secondary NAAQS, or (3) attainment. Some regions are indicated as "unclassifiable" because sufficient ambient air quality data are not available. For NO_2 , there are only two designations since the primary and secondary NAAQS are identical: (1) not meeting the primary NAAQS, and (2) attainment. An area is designated as "non-attainment" if the primary NAAQS is not satisfied. The attainment status of a particular region in which a boiler is located may be an influencing factor in determining the environmental acceptability of fuel conversion. The attainment status of all areas containing oil-fired boilers has been compiled on a unit-by-unit basis in Appendix C.

The responsibility for developing plans and regulations to implement the NAAQS resides with the state. Each state, through a State Implementation Plan (SIP), has passed measures for attaining, maintaining, and enforcing the NAAQS. For oil-fired utility boilers, these regulations consist primarily of limits on the amount of any pollutant that can be emitted, as well as restrictions on the sulfur content of the

fuel. An examination of state regulations as they pertain to fossil fuel fired units would be required when considering fuel switching. A compilation of applicable state and local regulations is presented in Appendix E.

4.3.1 Attainment Status: Coal-Designed Boilers

A summary of the attainment status of coal-designed oil-fired boilers by Standard Federal Region is presented in Table 5. Classifications have been compiled only for the pollutants TSP and SO_2 , since only one coal-designed unit is located in a nonattainment area for the pollutant NO_2 . Attainment status was taken from an EPA report on attainment status (U.S. EPA, 1978) and through private communications with regional EPA Air Program Offices.

About one-quarter of the coal-designed boiler capacity is located in nonattainment areas for TSP. Forty-five percent of this capacity is within Region V, while the remainder of the capacity is spread throughout the Northeast and Mid-Atlantic regions. Only a very small number of boilers are located in nonattainment areas for SO_2 . These few units are located in Pennsylvania and Ohio. Therefore, relative to SO_2 , the control of particulates appears to be statistically the more consequential regulatory problem as regards attainment status.

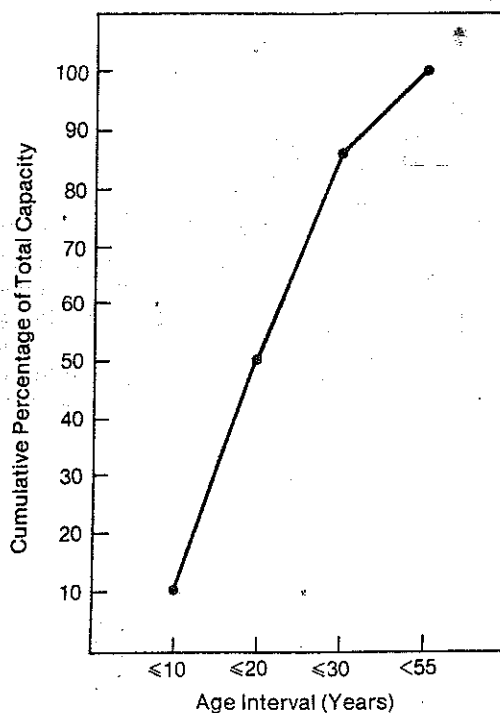


Figure 6
Cumulative Percentage of Generating Capacity
Versus Boiler Age for Coal-Designed Oil-Fired
Utility Boilers

Table 4
National Ambient Air Quality Standards

	National	
	Primary	Secondary
Sulfur Oxides		
Annual Arithmetic Mean, $\mu\text{g}/\text{m}^3$	80	
24-hour Maximum, * $\mu\text{g}/\text{m}^3$	365	
3-hour Maximum, * $\mu\text{g}/\text{m}^3$		1,300
1-hour Maximum, ** $\mu\text{g}/\text{m}^3$		
Particulate Matter		
Suspended		
Annual Geometric Mean, $\mu\text{g}/\text{m}^3$	75	60
24-hour Maximum, * $\mu\text{g}/\text{m}^3$	260	150
Carbon Monoxide		
8-hour Maximum, * mg/m^3	10	
1-hour Maximum, * mg/m^3	40	
Hydrocarbons		
3-hour (6-9 AM) Maximum, * $\mu\text{g}/\text{m}^3$	160	
Nitrogen Dioxide		
Annual Arithmetic Mean, $\mu\text{g}/\text{m}^3$	100	
Ozone		
1-hour Maximum, * $\mu\text{g}/\text{m}^3$	235	
Lead		
Quarterly Arithmetic Mean $\mu\text{g}/\text{m}^3$	1.5	

*not to be exceeded more than once per year

**not to be exceeded more than once per month

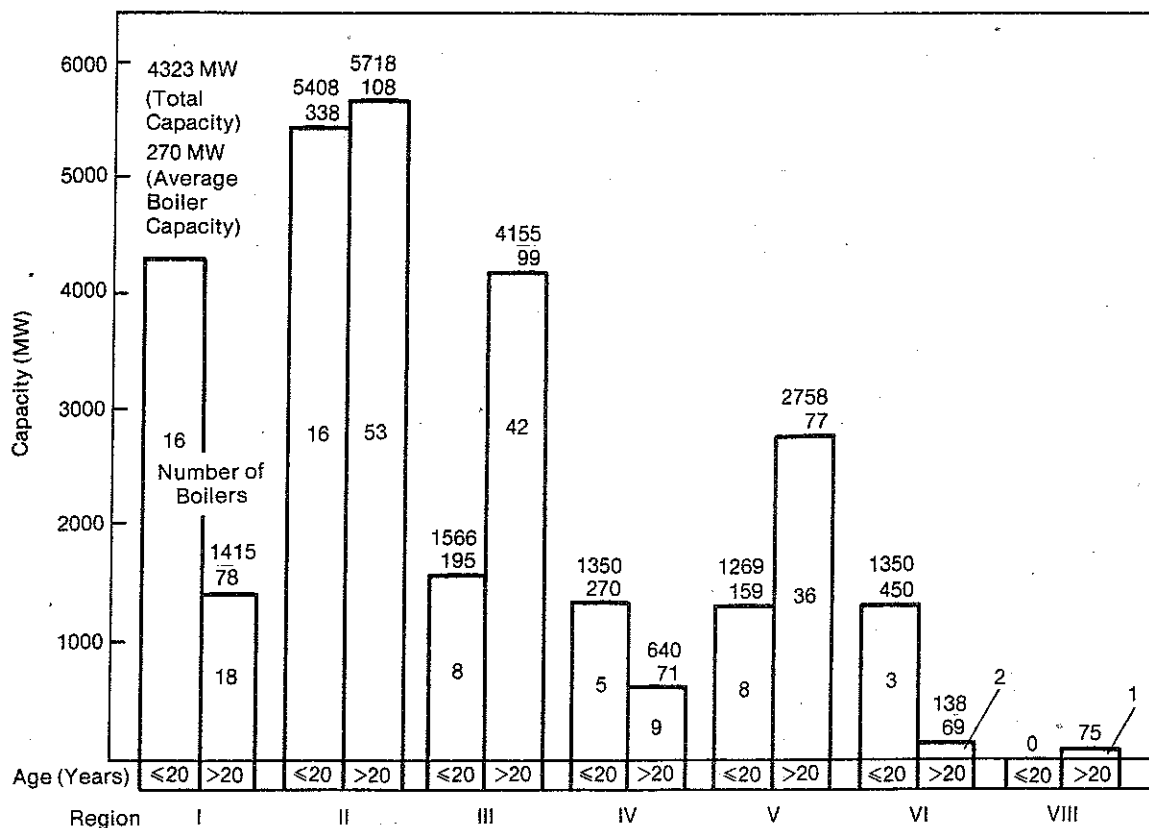


Figure 7
Distribution of Boiler Capacity by Federal Regions and Age for Coal-Designed, Oil-Fired Boilers

Table 5*Summary of Attainment Status: Boilers Designed for Coal, Currently Burning Oil*

Region*	Class. ¹	TSP		SO ₂	
		No.	MW	No.	Total MW
I	1	7	762	—	—
	2	6	1,063	—	—
	3	17	3,700	—	—
	4	4	213	34	5,738
	Total	34	5,738	34	5,738
II	1	1	455	—	—
	2	4	400	—	—
	3	26	5,252	24	4,341
	4	38	5,019	45	6,785
	Total	69	11,126	69	11,126
III	1	7	598	4	366
	2	11	802	—	—
	3	21	2,753	2	130
	4	11	1,568	44	5,225
	Total	50	5,721	50	5,721
IV	1	—	—	—	—
	2	—	—	—	—
	3	4	618	4	618
	4	10	1,372	10	1,372
	Total	14	1,990	14	1,990
V	1	31	2,940	7	438
	2	3	488	—	—
	3	—	—	3	150
	4	10	599	34	3,439
	Total	44	4,027	44	4,027
VI	1	—	—	—	—
	2	—	—	—	—
	3	—	—	—	—
	4	5	1,488	5	1,488
	Total	5	1,488	5	1,488
VII			None		None
VIII	1	1	75	—	—
	2	—	—	—	—
	3	—	—	—	—
	4	—	—	1	75
	Total	1	75	1	75
Total Regions I-VIII	1	47	4,830	11	804
	2	24	2,753	—	—
	3	68	12,323	33	5,239
	4	78	10,259	173	24,122
	Total	217	30,165	217	30,165

*Standard Federal Region.

¹Classifications:

1—Does not meet primary standard

2—Does not meet secondary standard

3—Unclassified

4—Attainment

However, it has been ruled that the conversion to burn COM or coal by reason of an order in effect under Sections 2(a) and (b) of the Energy Supply and Environmental Coordination Act of 1974, or any amendment thereto, or any subsequent legislation that may supersede it (e.g., the Fuel Use Act), or by reason of a natural gas curtailment plan in effect pursuant to the Federal Power Act, would not be considered a modification as specified in Section III(a) of the Clean Air Act (45FR5617, 23 January 1980). As a result, the modification of existing steam boilers

to burn COM or coal would not, in itself, bring it before Prevention of Significant Deterioration (PSD) or Nonattainment (NA) New Source Review (NSR) requirements or New Source Performance Standard (NSPS) review. On the other hand, if the hourly emission rate while burning COM or coal were increased relative to the present emission rate, this action would constitute a modification. Such a modification would require the facility to undergo a PSD or NA review.

4.4 Conversion Status of Coal-Designed Boilers

In the 1960s and early 1970s, a large number of coal-designed utility boilers were converted from coal-firing to oil-firing, in some cases for the economic advantages and in other cases to comply with ambient air quality standards. After the oil embargo of 1973, legislative steps were initiated to reconvert these boilers to coal-firing. The Energy Supply and Environmental Coordination Act (ESECA) of 1974 authorized the Federal Energy Administration (now DOE) to issue orders to electric power plants prohibiting the burning of oil or natural gas as the primary energy source. As of early 1979, 98 boilers had received prohibition orders. Of these, 23 boilers had received a Notice of Effectiveness (NOE), indicating that a schedule has been established for reconverting to coal; and 40 units were burning substantial quantities of coal although NOEs had not been received. The status of all these boilers is shown in Table 6. Based on these data, it has been determined that 4,243 MW are currently firing oil although under ESECA prohibition and, therefore, could be converted to an alternate fuel such as COM. This capacity has been included in Table 5 which lists the boilers designed for coal, currently burning oil.

More recently, in July 1979, the President's Commission on Coal has made further recommendations regarding the reconversion of coal-designed boilers to coal. There is overlap between the boilers recommended for reconversion by the President's Commis-

Table 6

*Status of Boilers under Prohibition Orders
(as of February 1979)*

	Status	No. of Units	Megawatt Capacity
A.	Received Notice of Effectiveness (NOE), Converting to 100% Coal	23	2550
B.	NOE Not Yet Received, Partially Burning Coal / Gas / Oil		
	(1) Burning > 90% Coal	4	573
	(2) Burning 90% Coal	3	771
	(3) Burning 80% Coal	8	1680
	(4) Burning < 80% Coal	25	4112
C.	Not Burning Coal	35*	5400*

*3 units at the Brayton Point Station of the New England Power Co. are under voluntary conversion, and will burn coal in the future. The adjusted number of units and megawatt capacity are 32 and 4243 MW.

sion and the boilers under ESECA prohibition so that the boilers listed in Table 5 and Table 6 can be expected to change as the Commission's recommendations are enacted.*

*More recent legislation such as the Powerplant and Industrial Fuel Use Act of 1978 (FUA) and the proposed administration oil back-out legislation may also effect these tabulations.

5.0 Oil-Designed Utility Boiler Statistics

Whereas the first priority for coal-designed oil-fired boilers is reconversion to coal if economically and technically feasible, the conversion of oil-designed boilers to coal, based on existing technology, may not be practical except for a few special cases. Other fuel conversion technologies such as COM may offer a more practical solution to the conversion of oil-designed boilers.

5.1 Size Distribution of Oil-Designed Boilers

As in the case of the coal-designed boilers, Table 7 shows a summary distribution of the oil-designed boilers in a matrix of size and age. Appendix F contains a further breakdown of the summary data of Table 7 into a series of tables which show the matrix distribution for each of the Standard Federal Regions.

The bottom line of Table 7, which shows the sum for each size interval, indicates the overall boiler size distribution independent of boiler age. Figure 8 is a graph of the overall size distribution as a cumulative percentage of total oil-designed capacity. This graph shows that approximately 80% of the oil-designed capacity derives from boilers greater than 200 MW in size. Furthermore, approximately 50% of the oil-designed capacity derives from boilers greater than 400 MW in size. By comparison to the size distribution of coal-designed boilers, oil-designed boilers have a much higher percentage of capacity in the larger sized boilers (80% versus 40% greater than 200 MW).

Figure 9 shows a series of oil-designed boiler size distributions for selected boiler age intervals. The results are similar to those obtained for the coal-designed boiler distributions, showing that the older boilers are smaller in size.

5.2 Age Distribution of Oil-Designed Boilers

Figure 10 shows the overall age distributions of oil-designed boilers. The largest increment of total

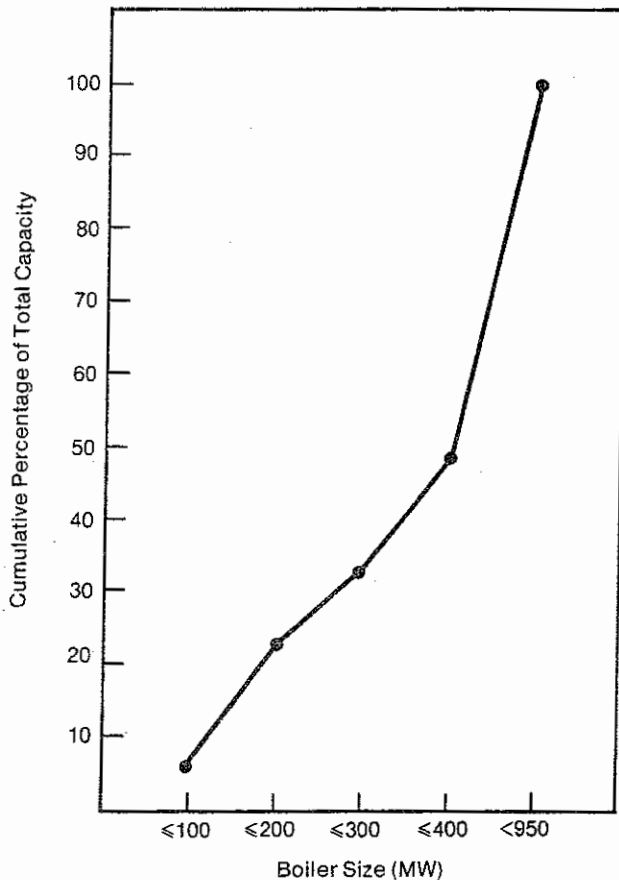


Figure 8
Overall Size Distribution of Boilers Designed for Oil

Table 7

Age and Size Distribution of Oil-Designed Boilers: All Regions Combined

		Size Interval (MW)										Total	
		≤100		>100≤200		>200≤300		>300≤400		>400			
		No.	MW	No.	MW	No.	MW	No.	MW	No.	MW	No.	MW
Age Interval (Years)	≤10	5	363	8	1217	4	1064	10	3614	44	26946	71	33204
	≥11≤20	13	886	15	2084	16	3696	21	7373	11	5614	76	19653
	≥21≤30	35	2337	46	6201	4	956	—	—	—	—	85	9494
	>30	12	820	1	108	—	—	—	—	—	—	13	928
	Total	65	4406	70	9610	24	5716	31	10987	55	32560	245	63279

capacity, 33,204 MW, is in the time interval less than or equal to 10 years. The next largest increment of 19,653 MW is in the 10 to 20 year time interval. Capacity greater than 20 years old is relatively small. This is shown in Figure 11 where cumulative percentage of total capacity is plotted as a function of boiler age. The results show that 83% of the oil-designed boiler capacity is less than 20 years old and that over 50% is less than 10 years old. Consequently, existing oil-designed boiler capacity is a large potential market for conversion to COM and other alternate fuels.

Figure 12 shows the distribution of boiler age according to Standard Federal Region. Examination of this chart shows that most of the capacity in Regions I through VI is less than 20 years old. However, the largest increment of capacity less than 20 years old, 15,588 MW, is in Region IX or primarily in California. At the same time, most of the capacity which is greater than 20 years old is also in Region IX.

As in the case of the coal-designed boilers, the younger boilers (<20 years old) are, on the average, two to nine times larger than the older boilers within the respective Federal Regions.

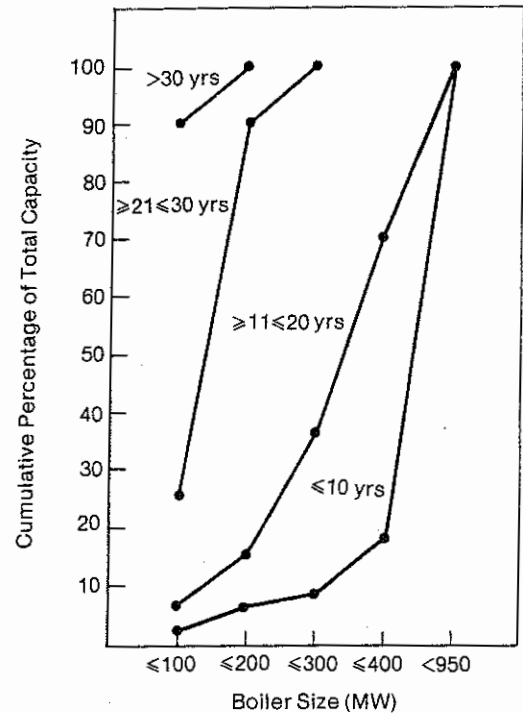


Figure 9

Size Distribution of Oil-Designed Boilers for Various Age Intervals

5.3 Attainment Status: Oil-Designed Boilers

As previously discussed for the coal-designed boilers, existing air quality, or attainment status relative to

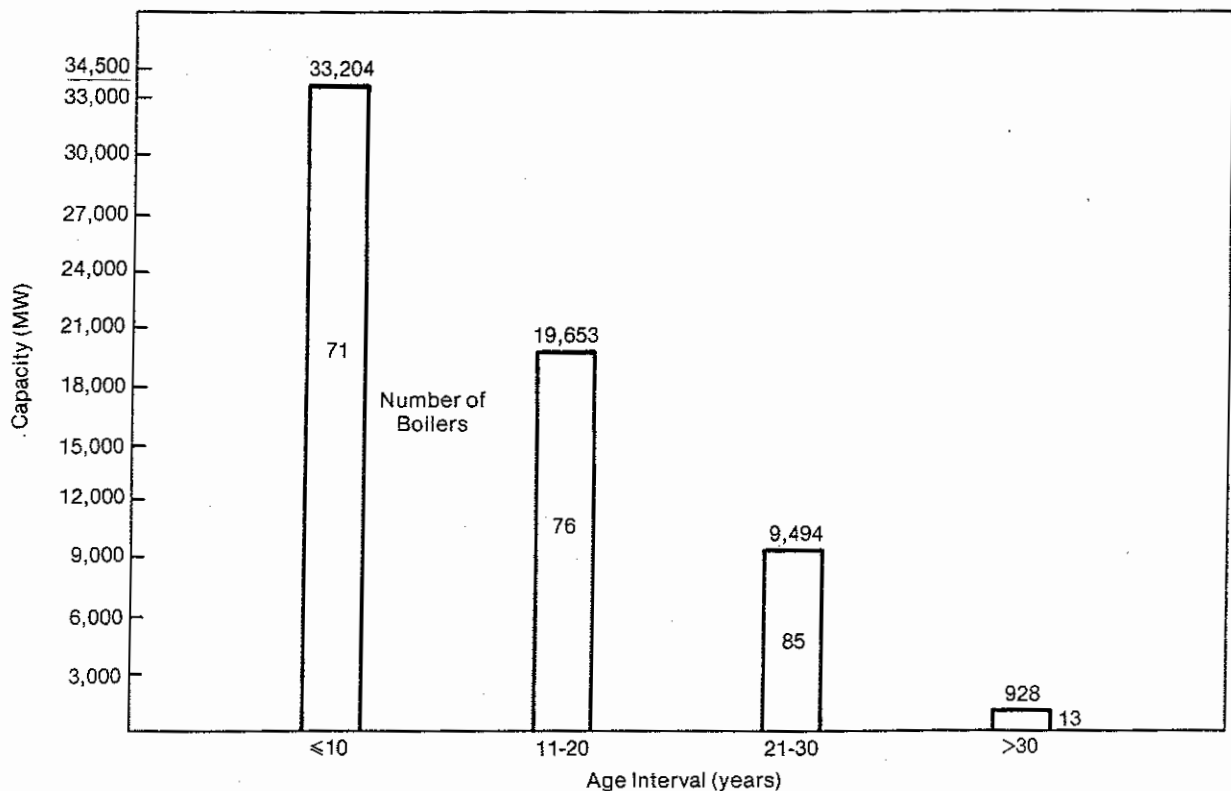


Figure 10

Overall Age Distribution of Oil-Designed Boilers

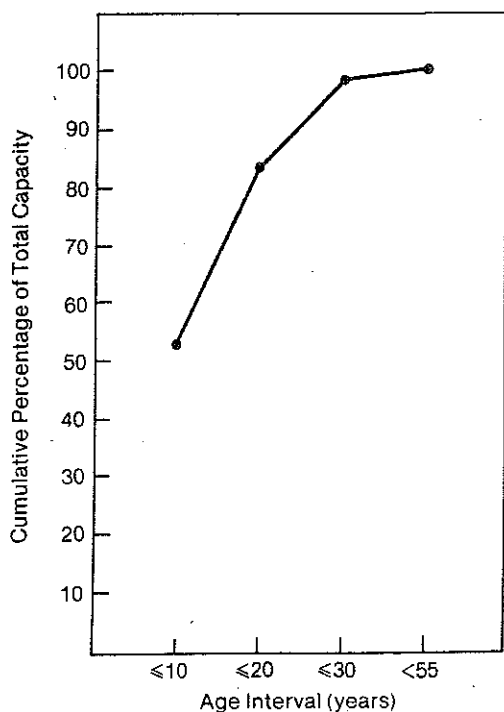


Figure 11
Cumulative Percentage of Generating Capacity
Versus Boiler Age for Oil-Designed Utility Boilers

NAAQS, was determined for areas containing oil-designed, oil-fired boilers. Attainment classifications were compiled for the pollutants TSP, SO₂, and NO₂. Unit-by-unit status can be found in Appendix C.

Table 8 shows a regional summary of the attainment status for TSP and SO₂. No summary is presented for NO₂ status since every boiler in the current study is located within an attainment area. About 28,500 MW of oil-designed capacity (or 45%) is located in nonattainment areas for TSP. The majority of this capacity is in Arizona and California (Region IX) where all but 132 MW out of 23,000 MW are classified as nonattainment. The combination of deteriorated existing air quality and a possible increase in particulate emissions from increased use of coal poses a potentially difficult situation for fuel conversions in Region IX. Requirements for strict pollution control and severe emission limits may warrant consideration of fuels such as COM which can be prepared with low sulfur and ash contents.

Only about 3% of oil-designed boiler capacity are located in SO₂ nonattainment areas. As in the case of TSP, the majority of this capacity is in Region IX, with the remainder in Florida.

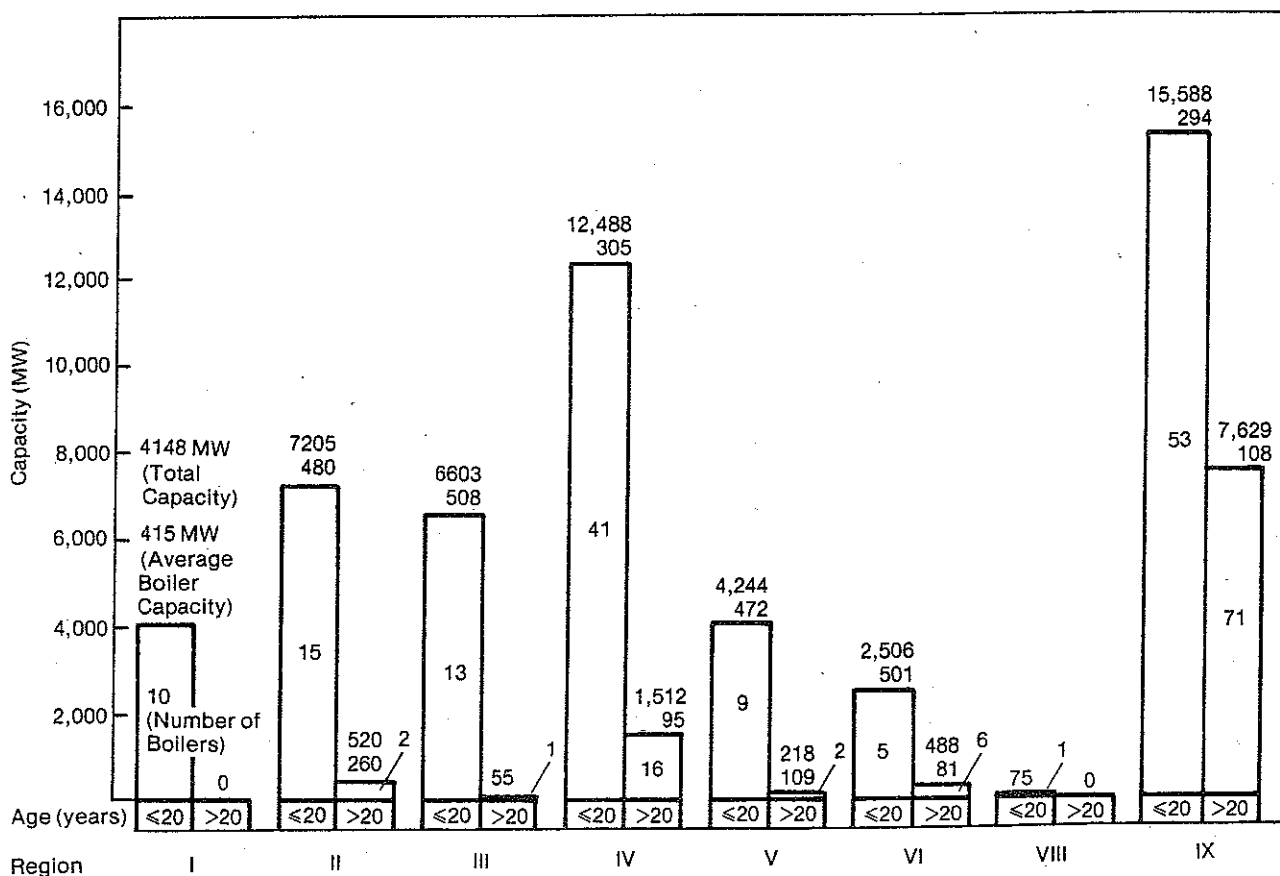


Figure 12
Distribution of Boiler Capacity by Federal Regions and Age for Oil-Designed Boilers

Table 8
Summary of Attainment Status: Boilers Designed for Oil, Currently Burning Oil

Region*	Class.	TSP		SO ₂	
		Number	MW	Number	MW
I	1	2	865	—	—
	2	1	383	—	—
	3	4	2,060	—	—
	4	3	840	10	4,148
	Total	10	4,148	10	4,148
II	1	—	—	—	—
	2	3	613	—	—
	3	3	1,626	3	1,626
	4	11	5,486	14	6,099
	Total	17	7,725	17	7,725
III	1	3	2,114	—	—
	2	3	633	—	—
	3	1	845	2	782
	4	7	3,066	12	5,876
	Total	14	6,658	14	6,658
IV	1	—	—	3	495
	2	—	—	—	—
	3	1	82	1	82
	4	56	13,918	53	13,423
	Total	57	14,000	57	14,000
V	1	2	218	—	—
	2	1	158	—	—
	3	5	2,649	—	—
	4	3	1,437	11	4,462
	Total	11	4,462	11	4,462
VI	1	1	446	—	—
	2	—	—	—	—
	3	—	—	—	—
	4	10	2,548	11	2,994
	Total	11	2,994	11	2,994
VII	1	—	—	—	—
	2	—	—	—	—
	3	—	—	—	—
	4	—	—	—	—
	Total	—	—	—	—
VIII	1	—	—	—	—
	2	—	—	—	—
	3	—	—	—	—
	4	1	75	1	75
	Total	1	75	1	75
IX	1	102	19,091	12	1,114
	2	20	3,994	—	—
	3	2	132	31	5,427
	4	—	—	81	16,676
	Total	124	23,217	124	23,217
Total Regions	1	110	22,734	15	1,609
I-IX	2	28	5,781	—	—
	3	16	7,394	37	7,917
	4	91	27,370	193	53,753
	Total	245	63,279	245	63,279

*Standard Federal Region

Classifications:

1—Does not meet Primary Standard

2—Does not meet Secondary Standard

3—Unclassified

4—Attainment

6.0 Oil-Designed Utility Boiler Types and Design Characteristics

The oil-designed utility boilers were studied and classified according to design characteristics. The four major boiler manufacturers, Babcock & Wilcox Co. (B&W), Combustion Engineering Co. (CE), Foster Wheeler Energy Corporation (FW), and Riley Stoker Co. (RS), were contacted for design data. Information was received for 198 units with a total of 55,186 MW. On an individual basis, the design of oil-

fired boilers was found to vary from company to company and from boiler to boiler. However, the oil-designed boilers generally can be classified into two types according to their configuration. These have been designated as Type 1 and Type 2 for convenient identification (Foo, 1979).

The Type 1 boiler, shown in Figure 13, has a configuration similar to a coal-designed unit. The flue

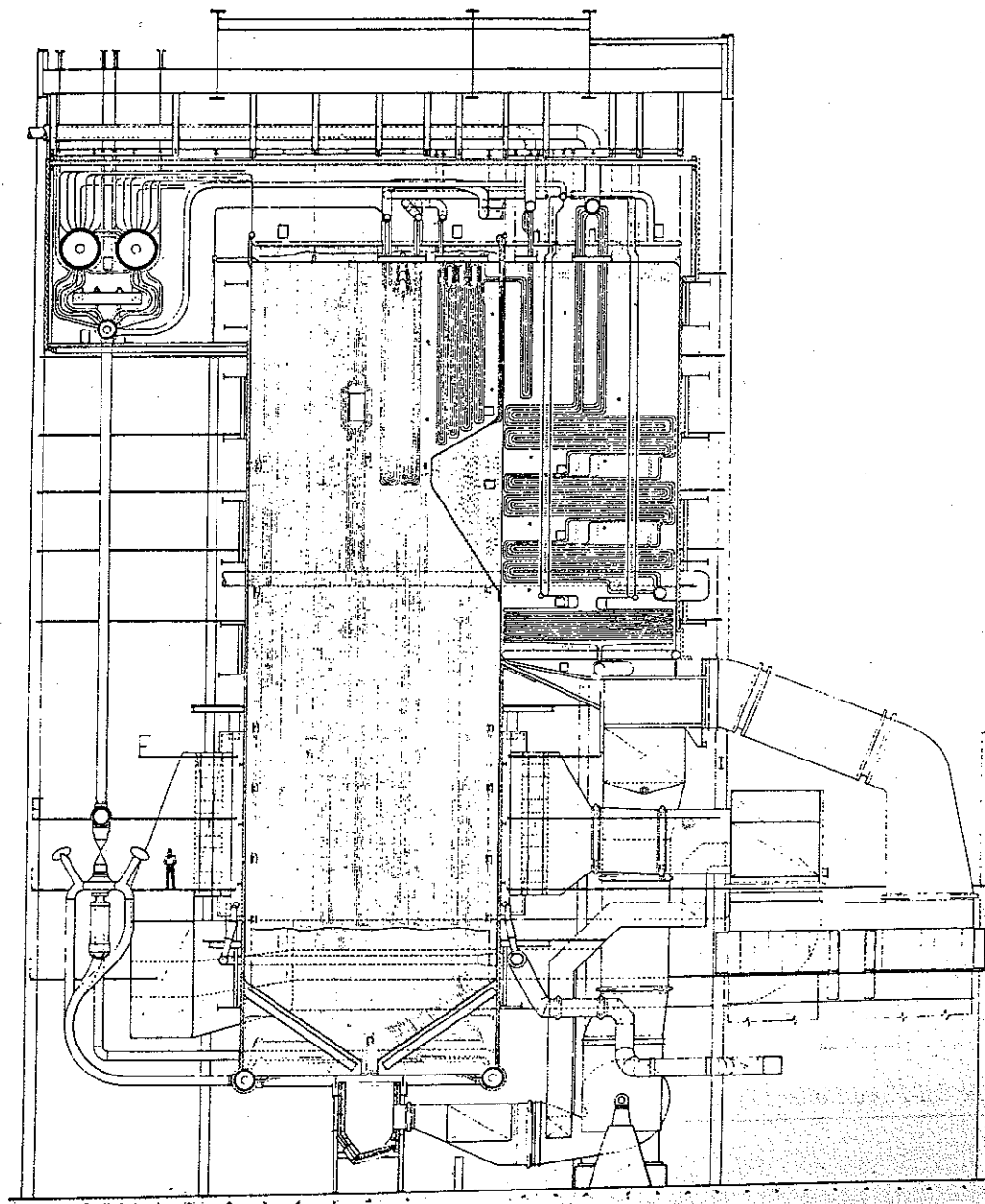


Figure 13
A Newer Base-Load Oil-Fired Boiler (Type 1)

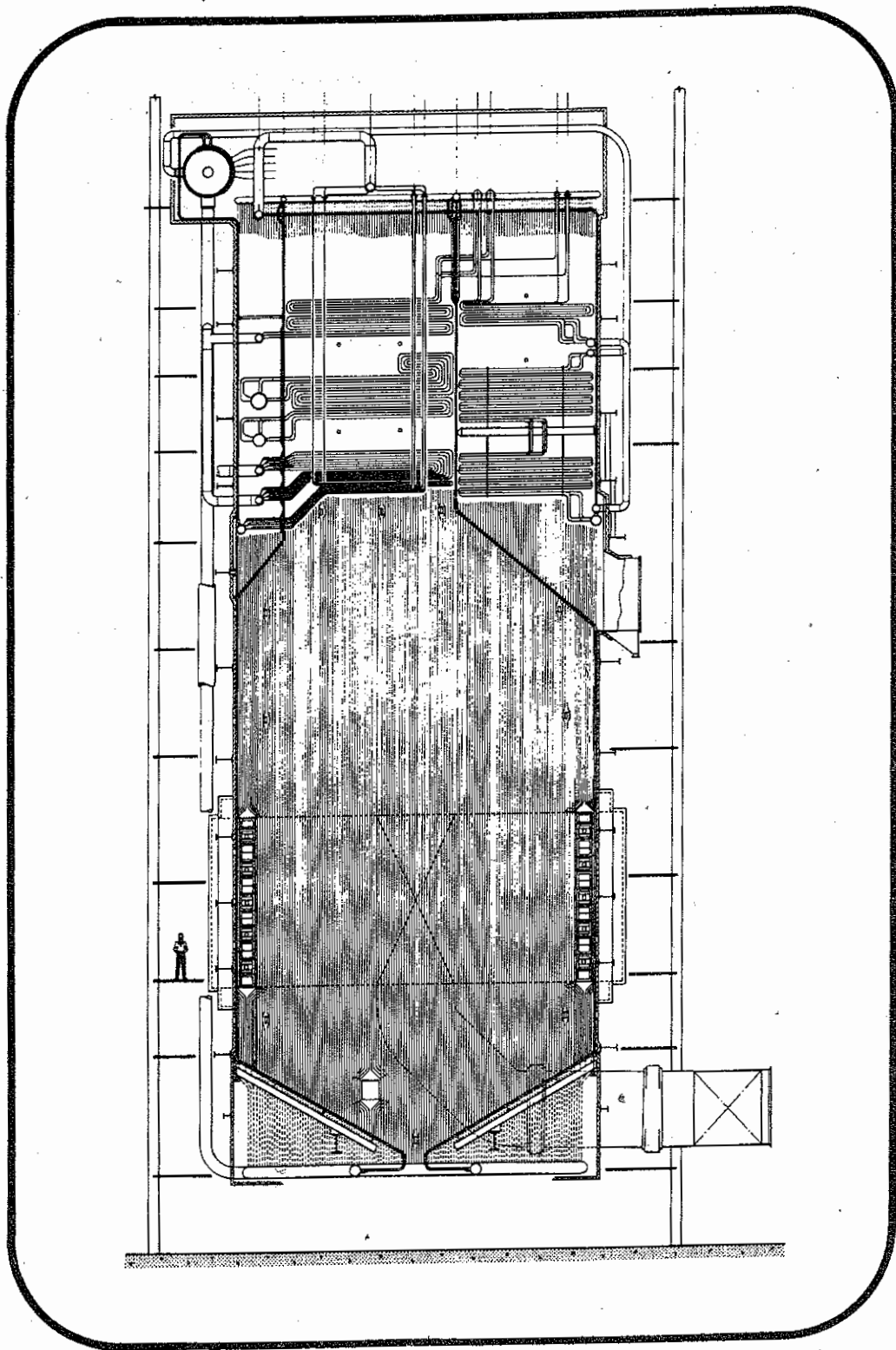


Figure 14
Newer Cyclic Oil-Fired Boiler (Type 2)

gases travel upward through the furnace, horizontally through a convective enclosure, and downward through the heat recovery area. The Type 2 boiler, shown in Figure 14, is a newer cyclic oil-fired boiler with a box-shaped configuration. The heat recovery area is situated directly above the furnace.

The design characteristics of the Type 1 and Type 2 oil-designed utility boilers are compared to those of coal-designed boilers in Table 9. The critical characteristics compared are furnace heat release rate, furnace exit gas temperature, and superheater tube spacing. Comparison of these characteristics shows that the Type 1 oil-designed boiler overlaps considerably with the coal-designed boiler, whereas the Type 2 boiler has very little overlap. The Type 2 boiler is usually more compactly designed than the Type 1 boiler for the same megawatt output. A small percentage of Type 1 and Type 2 boilers have flat furnace bottoms. The newer oil-designed boilers (less than 20 years old) of both types often have bottom ash hoppers to accommodate gas recirculation or a wider selection of fuel oils. In addition, newer boilers often have a larger furnace volume and wider superheater tube spacing. A high percentage of Type 1 boilers are used for base load operation, whereas a high percentage of Type 2 boilers are used for peak loading.

Type 1 boilers can be divided into universal pressure type (once through) boilers and drum-type boilers. The universal pressure boiler accounts for approximately 23% of the oil-designed capacity (Type 1 and Type 2), based on B&W data only. The design of the universal pressure type boiler is distinctly different from that of the drum-type boiler because it has a once-through water and steam circuit. The universal pressure boiler often has a capacity of 400 megawatts or larger and operates at a higher pressure range.

An estimated twenty percent of total oil-designed utility boiler capacity has been designed with allowances for potential conversion to coal-firing in the future. These boilers are identified as oil-fired boilers with future coal capability. Most of these boilers belong in the Type 1 category, but a few, mostly newer ones, belong in the Type 2 category.

A sectional drawing of a Type 1 boiler designed for future coal use is shown in Figure 15. As indicated, the boiler has been designed to provide space for pulverizers, coal piping, and coal handling systems, although these systems have not been installed. The future coal oil-designed boiler generally has a larger furnace volume and wider superheater tube spacing relative to a conventional oil-designed boiler. However, when it is converted to coal-firing, boiler derating may still occur depending on the specific design characteristics of the boiler and the fuel.

Table 10 shows the total megawatt capacities and size distribution of the Type 1 and Type 2 oil-designed boilers. Approximately 65% of the total oil-designed capacity (63,297 MW) is Type 1 and 35% is Type 2, based on a data sample representing 87% of the oil-designed capacity. With regard to size distribution, 73% of Type 1 capacity and 92% of Type 2 capacity are greater than 200 MW in size.

Based on these generalized boiler characteristics, the COM conversion potential for various boiler types can be assessed. The oil-designed future coal boiler (both Type 1 and Type 2) is the best candidate for COM conversion. The Type 1 drum boiler is the next best choice followed by the Type 1 universal pressure boiler which is more critical for conversion because of its once-through design. Conversion of the Type 2 boiler, which is strictly oil-designed, will require greater boiler modifications and, therefore, relatively higher capital costs.

Table 9
Comparison of Coal-Designed and Oil-Designed (Type 1 and Type 2) Utility Boilers

Features	Type 1 Oil-Designed	Type 2 Oil-Designed	Coal-Designed (pulverized)
— Similar to coal-designed boiler configuration	Yes	No	N.A.
— Furnace Heat Release Rate (KB/CU-FT/Hr)	*13-26	22-31	9-22
— Furnace Exit Gas Temp. (°F)	2050-2300	2200-2600	2000-2300
— Superheater tube spacing (first row)	12"-18"	6"-12"	12"-24"

N.A. = Not applicable

*The low furnace heat release rate (13 KB/CU-FT/HR) was found on the newer units (less than five years old) which were designed for oil and future coal.

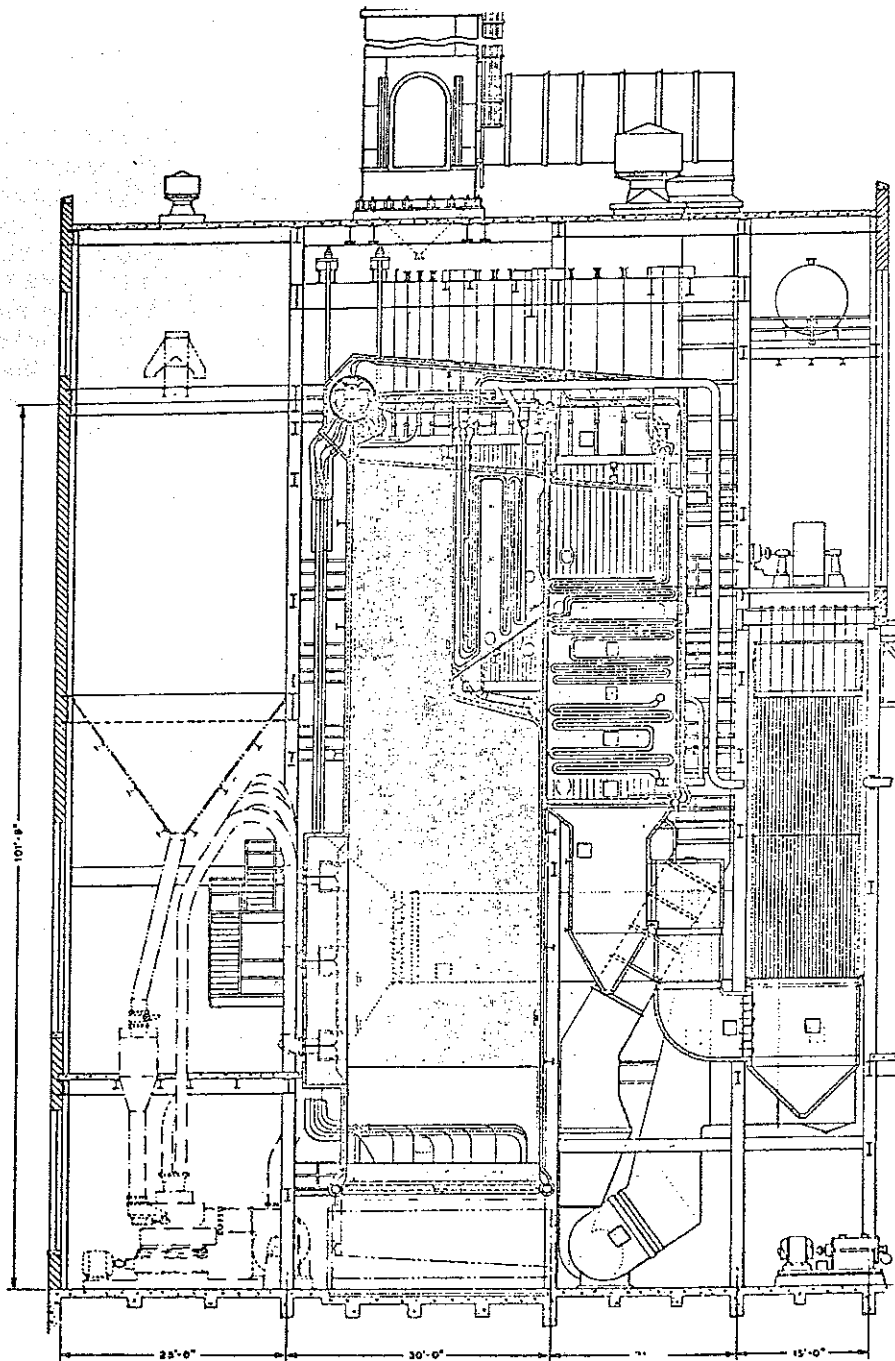


Figure 15
Oil-Fired Boiler With Future Coal Capability (Type 1F)

Table 10
Distribution of Type 1 and Type 2 Oil-Designed Boiler Capacity Versus Size

Size (MW)	50-100	101-200	201-300	301-400	>400	Total	Percentage
Type							
Type 1	31 units 2,281 MW	54 units 7,385 MW	10 units 2,479 MW	14 units 5,017 MW	30 units 18,647 MW	139 units 35,809 MW	70% 65%
Type 2	11 units 718 MW	6 units 887 MW	8 units 1,892 MW	16 units 5,694 MW	18 units 10,186 MW	59 units 19,377 MW	30% 35%

The total number of oil-designed boilers with capacity equal to or greater than 50 MW is 245 operational units of total capacity of 63,279 MW.
The sample data base consists of 198 units (81%) and 55,186 MW (87%).

7.0 Conclusions

Approximately 220 utility boilers with a total capacity of 30,165 MW have been identified as coal-designed boilers which are currently burning oil. Boilers which are under ESECA prohibition to reconvert to coal have been excluded from this estimate except for 4,243 MW of capacity which are derived from boilers still burning oil. More recent legislation such as FUA and the administration's proposed oil-backout legislation may affect these estimates as this legislation becomes operative. The Atlantic Coast Region (Federal Regions I through IV) contains most of the coal-designed, oil-fired capacity (approximately 81%).

In addition to the coal-designed boilers currently firing oil, there are 245 utility boilers with a total capacity of 63,279 MW which are oil-designed and firing oil. By comparison to the coal-designed boilers, the Atlantic Coast Region contains 51% of the oil-designed capacity. In addition, the data show that 65% of the oil-designed boiler capacity is concentrated in the states of California, Florida, and New York.

Forty percent of the coal-designed boiler capacity derives from boilers greater than 200 MW in size, whereas 80% of the oil-designed boiler capacity derives from boilers greater than 200 MW in size. Furthermore, the oil-designed boilers are larger in size relative to the coal-designed boilers. Overall, there is a significant integral capacity of large-sized boilers which generally favors economy of scale for conversion.

Fifty percent of the coal-designed boiler capacity and 83% of the oil-designed capacity is less than 20 years old. Therefore, it can be concluded that significant capacities are younger than the boiler half-life providing a favorable situation with regard to life cycle conversion costs.

As regards the location of utility boilers in nonattainment areas, only a small percentage of oil-designed and coal-designed utility boilers are located in areas which have been designated as nonattainment for SO_2 by the EPA. Also, there is only one utility boiler which is currently located in a nonattainment area for NO_2 . However, approximately 25% of the coal-designed boiler capacity and 45% of the oil-designed capacity is located in nonattainment

areas for TSP. Therefore, statistically, particulate control appears to be the most significant regulatory need. However, particulate control technology is well developed and accepted by users and regulators so that the availability and acceptability of this technology is not a significant problem as it is with regard to flue gas desulfurization (FGD). This does not mean that FGD will not be required for conversion, but that the granting of regulatory permits for conversion will be more readily allowed in the SO_2 attainment areas. Conversion to COM or coal, in itself, is not regarded as a modification subject to Prevention of Significant Deterioration (PSD) or nonattainment regulations. However, an increase of emission rates relative to existing emission rates may cause a conversion to be regarded as a modification, consequently subjecting the facility to PSD and nonattainment regulations.

Investigation of the oil-designed boiler characteristics indicates that there are generally two types: Type 1 which has characteristics closer to coal-designed boilers, and Type 2 which is distinctly different from coal-designed boilers. Approximately 65% of the oil-designed capacity is Type 1 and 35% is Type 2. This division of capacity favors boiler designs which are less risky conversion candidates.

Based on the factors which have been statistically analyzed, the conversion of oil-designed and coal-designed utility boilers to COM appears to be a practical undertaking. Final conclusions will depend on evaluation of specific sites. The most opportune period for conversion is probably in the next 10 years when the impact of conversion to COM technology may be most significant.

If it is assumed that 50% of the coal-designed and oil-designed capacity is converted to a COM of 40% coal concentration, the oil which will be displaced is approximately 103×10^3 bbl/day for the coal-designed boiler capacity and 217×10^3 bbl/day for the oil-designed boiler capacity. The total displacement of oil for the utility sector is approximately 320×10^3 bbl/day. Furthermore, in addition to the utility sector, there are the potential industrial boiler and process industry conversion markets which have not been addressed in this report.

References

1. PEDCo Environmental, Inc., *Evaluation of the Feasibility of Total Conversion to Coal: 20 Plant Report*, Cincinnati, Ohio, 1976.
2. PEDCo Environmental, Inc., *Coal Conversion Universe*, Cincinnati, Ohio, 1977.
3. Edelson, B.S. and E.S. Rubin, *Current and Future Use of Coal in the Northeast*, Brookhaven National Laboratory, Upton, New York, 1976.
4. National Coal Association, *Steam Electric Plant Factors, 1978*, Washington, D.C., 1979.
5. U.S. Environmental Protection Agency, *National Ambient Air Quality Standards, States Attainment Status*. 43FR43, March 3, 1978.
6. U.S. Environmental Protection Agency, Federal Register, Vol. 45 (45FR5617, 23 January 1980).
7. Foo, O.K., E.M. Jamgochian, J.C. Blake, T.F. Skinner, *Market Assessment and Financial Analysis of COM Conversion*, Proceedings Second International Symposium on Coal-Oil Mixture Combustion, CONF-791160, Vol. 2, November 1979.
8. National Bureau of Standards, *Counties and County Equivalents of the States of the United States*. Federal Information Processing Standards Publication 6-2, U.S. Department of Commerce, Washington, D.C., 1973.
9. Electrical World, *Electrical World Directory of Electric Utilities, 1979-1980*, New York, N.Y., 1980.

Appendix A

List of Utilities With Oil-Fired Boilers

There is a total of 77 utilities which operate oil-fired boilers. Table A.1 lists all the utilities by Standard Federal Region and shows the GURF designa-

tion. Table A.2 summarizes the number of utilities by Standard Federal Region and state.

Table A.1
Utilities with Oil-Fired Boilers

Region	State	Utilities	GURF Designation
I	CT	Connecticut Light and Power	COLP
		Hartford Electric Light Company	HAEL
		United Illuminating Company	UNIL
	ME	Central Maine Power Company	CEMP
	MA	Boston Edison Company	BOEC
		New England Power Company	NEEP
		Canal Electric Company	CACO
		Holyoke Water Power Company	HOWP
		Western Massachusetts Electric Company	WEME
		Montaup Electric Company	MOEL
	NH	Public Service Company of New Hampshire	PSNH
	RI	The Narragansett Electric Company	NAEC
II	NJ	Atlantic City Electric Company	ATCE
		Deepwater Operating Company	DWOC
		Jersey Central Power and Light Company	JCEP
		Public Service Electric and Gas Company	PSEG
	NY	Central Hudson Gas and Electric Corporation	CEHG
		Consolidated Edison Company of New York, Incorporated	COEN
		Long Island Lighting Company	LOIL
		Niagara Mohawk Power Corporation	NIMP
		Orange and Rockland Utilities, Incorporated	ORRU
		Power Authority of the State of New York	POAS
III	DE	Delmarva Power and Light Company	DEPL
		Dover Municipal Power Plant	DODE
	DC	Potomac Electric Power Company	POEP
	MD	Baltimore Gas and Electric Company	BAGE
		Potomac Electric Power Company	POEP
	PA	Delmarva Power and Light Company	DEPL
		Pennsylvania Power and Light Company	PEPL
		Philadelphia Electric Company	PHEC
	VA	West Pennsylvania Power Company	WEPP
		Virginia Electric and Power Company	VIEP
IV	FL	Florida Power and Light Company	FLPL
		Florida Power Corporation	FLPC
		Ft. Pierce Utilities Authority	FOPL
		Gainesville - Alachua County Regional Electric, Water, and Sewer Utilities Board	GAMW
		Jacksonville Beach Municipal Electric Department	JACO
		Lakeland Department of Electric and Water Utilities	LALW
		Orlando Utilities Commission	ORLA
		Tallahassee Electric Department	TALL
		Tampa Electric Company	TAEC
		Vero Beach Municipal Utilities	VEBM
	GA	Georgia Power Company	GEPC
		Savannah Electric and Power Company	SAEP
	MS	Mississippi Power Company	MIPR
		Mississippi Power and Light Company	MIPO
	SC	South Carolina Electric and Gas Company	SOCG
		South Carolina Public Service Authority	SOCA

(continued on next page)

Table A.1 (Continued)
Utilities with Oil-Fired Boilers

Region	State	Utilities	GURF Designation
V	IL	Commonwealth Edison Company	COEC
		Illinois Power Company	ILPC
		Central Illinois Public Service	CEIP
		Union Electric Company	UNEC
	IN	Indiana and Michigan Electric Company	INME
	MI	Consumers Power Company	COPR
		Detroit Edison Company	DEEC
		Detroit Public Lighting Commission	DETR
	MN	Interstate Power Company	INPD
	OH	Cincinnati Gas and Electric Company	CIGE
		Cleveland Electric Illuminating Company	CLEI
	WI	Wisconsin Electric Power Company	WEIP
VI	AR	Arkansas Power and Light Company	ARPL
	LA	Gulf States Utilities Company	GUSU
		Louisiana Power and Light Company	LOPI
	NM	El Paso Electric Company	ELPE
	TX	Houston Lighting and Power Company	HOLP
		Southwestern Electric Power Company	SOEP
VIII	CO	Public Service Company of Colorado	PSCO
	SD	Northern States Power Company	NOSW
IX	AZ	Arizona Public Service Company	ARPS
		Salt River Project Agricultural Improvement and Power District	SARV
		Tucson Gas and Electric Company	TUGE
	CA	Burbank Public Service Department	BRUB
		Glendale Public Service Department	GLPS
		Imperial Irrigation District	IMID
		Los Angeles Department of Water and Power	LOAN
		Pacific Gas and Electric Company	PAGE
		Pasadena Water and Power Department	PASA
		San Diego Gas and Electric Company	SADG
		Southern California Edison Company	SOCE

Table A.2
Number of Utilities Operating Oil-Fired Boilers (≥ 50 MW)

Region	State	No. Utilities	Region	State	No. Utilities
I	CT	3	V	IL	4
	ME	1		IN	1
	MA	6		MI	3
	NH	1		MN	1
	RI	1		OH	2
	Total	12		WI	1
II	NJ	4	VI	Total	12
	NY	6		AR	1
	Total	10		LA	2
III	DE	2		NM	1
	DC	1		TX	2
	MD	3		Total	6
	PA	3	VII		None
	VA	1			
	Total	10*	VIII	CO	1
IV	FL	10		SD	1
	GA	2		Total	2
	MS	2	IX	AZ	3
	SC	2		CA	8
	Total	16		Total	11
			U.S. Total		77*

*Delmarva Power and Light operates boilers in both Delaware and Maryland. Potomac Electric Power Company operates in both The District of Columbia and Maryland.

Appendix B

Oil-Fired Utility Boiler Data File: Unit Location, Design Fuel, Capacity, Age, Pollution Control, and Conversion Status

The tables in this appendix present detailed baseline information for each unit in the study survey. The primary source for these data is the Department of Energy's "Generating Unit Reference File (GURF)." In some cases, personal communication with appropriate utilities or agencies was necessary to discern or verify incomplete data. The "Company" column of these tables contains a four-letter abbreviation of the utility which operates that particular unit (see Appendix A). The utility company designation is followed by the unit name and boiler number. The "P.F." and "A.F." columns indicate the primary and alternate fuels, respectively. The next four columns give the nameplate capacity, unit age (as of 1979), and pollution control equipment types. These are followed by Air Quality Control Region (AQCR) and county location codes. County codes were taken from "Counties and County Equivalents of the States of the United States" (National Bureau of Standards, 1973). A complete listing of fuel types and other abbreviations has been included.

In addition to the above features, fuel conversion status information is shown in the "Comments" column. Units which have received prohibition orders issued in either June 1977 or July 1979 are marked with a "P1" or "P2," respectively. The letter "N" indicates those units which have received a "Notice of Effectiveness" (NOE). Initial reconversion candidates recommended by the President's Commission on Coal are indicated by a "C1," follow-up reconversion units by a "C2." Units burning substantial quantities of coal are noted by an "NBC" (Now Burning Coal). The designation "FC" refers to those units which were originally designed for oil-firing, but have the design capability to burn coal in the future.

The tables are broken down into two categories, boilers originally designed for coal (Table B.1) and boilers originally designed for oil (Table B.2), and

are distributed according to Standard Federal Regions. Boilers designed for coal are presented first and are indicated by the letter "C" behind the MITRE I.D. number.

Abbreviations

P.F.	- Primary Fuel Usage
A.F.	- Alternate Fuel Usage
O	- Oil
FO2	- No. 2 Fuel Oil
FO6	- No. 6 Fuel Oil
G	- Gas
NG	- Natural Gas
C	- Coal
BIT	- Bituminous Coal
SUB	- Subbituminous Coal
MUL	- Multi-fueled

Sulfur Control

L.S.	- Low Sulfur Fuel
H.S.	- High Stack
C.B.	- Combination
OTHE	- Other
PNS	- Process Not Selected

Particulate Control

ESP	- Electrostatic Precipitator
MCTA	- Multiple Cyclones, Conventional Reverse Flow, Tangential Inlet
MCAX	- Multiple Cyclones, Conventional Reverse Flow, Axial Inlet
CYCL	- Straight-Through-Flow Cyclones
Mul Cyc.	- Multiple Cyclones
VENT	- Wet Collector; Venturi
WECT	- Wet Collector; Other
BAGH	- Baghouse (Fabric Collector)
COMB	- Combined Electrostatic and Mechanical Precipitators
DUST	- Dust Collector
Other	- Other than above

Table B.1*Utility Boilers Designed for Coal Firing, Currently Burning Oil*

Federal Region I													
State	I.D.	Company	Plant	Unit	P.F.	A.F.	NPLT MW	Age	Control		AQCR	County	Comments
									SO ₂	TSP			
CT	0901C	COLP	Devon	3	0	—	66	28	—	—	042	009	C2
CT	0902C	COLP	Devon	6	0	—	66	30	—	—	042	009	—
CT	0903C	COLP	Devon	7	0	—	104	23	—	—	042	009	C2
CT	0904C	COLP	Devon	8	0	—	104	21	—	—	042	009	C2
CT	0905C	COLP	Montville	5	0	—	75	25	—	—	041	011	C2
CT	0906C	COLP	Norwalk Harbor	1	0	—	163	19	—	—	043	001	P2,C1,NBC
CT	0907C	COLP	Norwalk Harbor	2	0	—	163	16	—	—	043	001	P2,C1,NBC
CT	0908C	HAEL	Middletown	1	0	C	69	25	—	—	042	007	P2,C2,NBC
CT	0909C	HAEL	Middletown	2	0	C	114	21	—	—	042	007	P2,C1,NBC
CT	0910C	HAEL	Middletown	3	0	C	239	15	—	—	042	007	P2,C1,NBC
CT	0911C	UNIL	Bridgeport	1	0	C	82	22	L.S.	ESP	043	001	C1
CT	0912C	UNIL	Bridgeport	2	0	C	180	18	L.S.	ESP	043	001	C1
CT	0913C	UNIL	Bridgeport	3	0	C	400	11	L.S.	ESP	043	001	C1
MA	2501C	BOEC	Mystic	4	0	—	125	22	—	—	119	017	C2
MA	2502C	BOEC	Mystic	5	0	—	156	20	—	—	119	017	C2
MA	2503C	BOEC	Mystic	6	0	—	156	18	—	—	119	017	C2
MA	2504C	BOEC	New Boston	1	0	—	358	3	—	—	119	025	—
MA	2505C	BOEC	New Boston	2	0	—	380	12	—	—	119	025	Des. Fut Coal
MA	2506C	CACO	Canal	1	0	—	572	11	L.S.	ESP	120	001	Des. Fut. Coal
MA	2507C	HOWP	Mt. Tom	1	0	C	136	19	—	—	042	013	P2,C2,NBC
MA	2508C	NEEP	Brayton Point	1	F06	BIT	241	16	L.S.	ESP	120	005	P2,C1
MA	2509C	NEEP	Brayton Point	2	F06	BIT	241	15	L.S.	ESP	120	005	P2,C1
MA	2510C	NEEP	Brayton Point	3	F06	BIT	643	10	L.S.	ESP	120	005	P2,C1
MA	2511C	NEEP	Salem Harbor	1	F06	C	82	27	L.S.	ESP	119	009	C1
MA	2512C	NEEP	Salem Harbor	2	F06	C	82	27	L.S.	ESP	119	009	C1
MA	2513C	NEEP	Salem Harbor	3	F06	C	170	7	L.S.	ESP	119	009	C1

(continued on next page)

Table B.1 (Continued)
Utility Boilers Designed for Coal Firing, Currently Burning Oil

Federal Region I (concluded)

State	I.D.	Company	Plant	Unit	P.F.	A.F.	NPLT MW	Age	Control		AQCR	County	Comments
									SO ₂	TSP			
MA	2514C	WEME	W. Springfield	2	0	—	50	27	—	—	042	013	C2
MA	2515C	WEME	W. Springfield	3	0	—	114	22	—	—	042	013	C2
MA	2516C	MOEL	Somerset	5	0	—	69	28	—	—	120	005	—
MA	2517C	MOEL	Somerset	6	0	—	125	20	—	—	120	005	C2
NH	3301C	PSNH	Schiller	4	F06	—	50	27	L.S.	COMB	121	015	P1,C2,NBC
NH	3302C	PSNH	Schiller	5	F06	—	50	24	L.S.	COMB	121	015	P1,C2,NBC
NH	3303C	PSNH	Schiller	6	F06	—	50	22	L.S.	—	121	015	P1,C2,NBC
RI	4401C	NAEC	South Street	12	F06	—	63	24	—	—	120	007	

Federal Region II

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NJ	3401C	DWOC	Deepwater	1	0	C	82	21	L.S.	ESP	045	033	C2
NJ	3402C	DWOC	Deepwater	3	0	—	53	49	L.S.	Dust	045	033	—
NJ	3403C	DWOC	Deepwater	4	0	—	54	49	L.S.	Dust	045	033	—
NJ	3404C	DWOC	Deepwater	6	0	—	75	25	L.S.	Dust	045	033	C2
NJ	3405C	PSEG	Bergen	1	F06	NG	325	20	L.S.	—	043	003	C1
NJ	3406C	PSEG	Bergen	2	F06	NG	325	19	L.S.	—	043	003	C1
NJ	3407C	PSEG	Burlington	6	F06	—	120	36	L.S.	—	045	005	—
NJ	3408C	PSEG	Burlington	7	F06	—	196	24	L.S.	—	045	005	C1
NJ	3409C	PSEG	Hudson	1	F06	NG	455	15	L.S.	—	043	017	C1
NJ	3410C	PSEG	Kearney	7	F06	—	142	26	L.S.	—	043	017	C1
NJ	3411C	PSEG	Kearney	8	F06	—	146	26	L.S.	—	043	017	C1
NJ	3412C	PSEG	Sewaren	1	F06	NG	103	31	L.S.	—	043	023	C1
NJ	3413C	PSEG	Sewaren	2	F06	NG	100	31	L.S.	—	043	023	C1
NJ	3414C	PSEG	Sewaren	3	F06	NG	109	30	L.S.	—	043	023	C1
NJ	3415C	PSEG	Sewaren	4	F06	NG	119	28	L.S.	—	043	023	C1
NJ	3416C	JECP	Werner	4	0	—	60	26	L.S.	—	043	023	C2

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Table B.1 (Continued)
Utility Boilers Designed for Coal Firing, Currently Burning Oil

Federal Region II (continued)													
State	I.D.	Company	Plant	Unit	P.F.	A.F.	NPLT MW	Age	Control			County	Comments
									SO ₂	TSP	AQCR		
NJ	3417C	JECP	Gilbert	1	0	G	123	24	L.S.	—	151	019	—
NJ	3418C	JECP	Gilbert	2	0	G	125	21	L.S.	—	151	019	—
NJ	3419C	JECP	Gilbert	3	0	G	69	30	L.S.	—	151	023	—
NJ	3420C	JECP	Sayreville	4	0	G	123	24	—	—	043	023	C2
NJ	3421C	JECP	Sayreville	5	0	G	125	21	—	—	043	023	C2
NY	3601C	CEHG	Danskammer	1	0	—	72	28	L.S.	ESP	161	071	C2
NY	3602C	CEHG	Danskammer	2	0	—	73	25	L.S.	ESP	161	071	C2
NY	3603C	CEHG	Danskammer	3	0	—	147	20	L.S.	ESP	161	071	P1,C1,NBC
NY	3604C	CEHG	Danskammer	4	0	—	239	12	L.S.	ESP	161	071	P1,C1,NBC
NY	3605C	COEN	Arthur Kill	2	0	—	376	20	—	—	043	085	C1
NY	3606C	COEN	Arthur Kill	3	0	—	535	10	—	—	043	085	C1
NY	3607C	COEN	Astoria	1	0	G	200	26	—	—	043	081	C2
NY	3608C	COEN	Astoria	2	0	G	200	25	—	—	043	081	C2
NY	3609C	COEN	Astoria	3	0	G	376	21	—	—	043	081	C2
NY	3610C	COEN	Astoria	4	0	—	387	18	—	—	043	081	C2
NY	3611C	COEN	Astoria	5	0	—	387	17	—	—	043	081	C2
NY	3612C	COEN	East River	5	0	G	156	28	—	—	043	047	C2
NY	3613C	COEN	East River	6	0	G	156	28	—	—	043	047	C2
NY	3614C	COEN	East River	7	0	G	200	24	—	—	043	047	C2
NY	3615C	COEN	Ravenswood	3	0	C	1028	14	—	—	043	081	C1
NY	3616C	COEN	Hudson Ave.	5	0	—	110	51	L.S.	—	043	047	—
NY	3617C	COEN	Hudson Ave.	6	0	—	110	49	L.S.	—	043	047	—
NY	3618C	COEN	Hudson Ave.	7	0	—	160	47	L.S.	—	043	047	—
NY	3619C	COEN	Hudson Ave.	8	0	—	160	47	L.S.	—	043	047	—
NY	3620C	COEN	Hudson Ave.	9	0	—	60	28	L.S.	—	043	047	—
NY	3621C	COEN	Waterside	4	0	G	50	42	—	—	043	061	—

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Table B.1 (Continued)

Utility Boilers Designed for Coal Firing, Currently Burning Oil

Federal Region II (concluded)

State	I.D.	Company	Plant	Unit	P.F.	A.F.	NPLT MW	Age	Control			County	Comments
									SO ₂	TSP	AQCR		
NY	3622C	COEN	Waterside	5	0	G	66	41	—	—	043	061	—
NY	3623C	COEN	Waterside	6	0	G	75	38	—	—	043	061	—
NY	3624C	COEN	Waterside	8	0	—	62	30	—	—	043	061	—
NY	3625C	COEN	Waterside	9	0	—	62	30	—	—	043	061	—
NY	3626C	COEN	Waterside	14	0	G	60	31	—	—	043	061	—
NY	3627C	COEN	Waterside	15	0	G	75	30	—	—	043	061	—
NY	3628C	COEN	59th Street	13	0	—	57	27	—	—	043	061	—
NY	3629C	COEN	74th Street	9	0	—	75	20	—	—	043	061	—
NY	3630C	COEN	74th Street	10	0	—	69	23	—	—	043	061	—
NY	3631C	LOIL	Far Rockaway	4	0	G	114	26	L.S.	MCTA	043	081	C2
NY	3632C	LOIL	Glenwood	4	0	G	114	27	L.S.	MCTA	043	059	C2
NY	3633C	LOIL	Glenwood	5	0	G	114	25	L.S.	MCTA	043	059	C2
NY	3634C	LOIL	Barrett, E.F.	1	0	G	187	23	L.S.	MCTA	043	059	C2
NY	3635C	LOIL	Barrett, E.F.	2	0	G	187	16	L.S.	MCTA	043	081	—
NY	3636C	LOIL	Port Jefferson	3	0	—	187	21	Other	MCTA	043	103	P2,C1,NBC
NY	3637C	LOIL	Port Jefferson	4	0	—	187	19	Other	MCTA	043	103	P2,C1,NBC
NY	3638C	NIMP	Albany	1	F06	—	100	27	L.S.	MCAX	161	001	P1,C1,NBC
NY	3639C	NIMP	Albany	2	F06	—	100	27	L.S.	MCAX	161	001	P1,C1,NBC
NY	3640C	NIMP	Albany	3	F06	—	100	27	L.S.	MCAX	161	001	P1,C1,NBC
NY	3641C	NIMP	Albany	4	F06	—	100	25	L.S.	MCAX	161	001	P1,C1,NBC
NY	3642C	NIMP	Oswego	1	F06	—	92	38	L.S.	MCTA	158	075	—
NY	3643C	NIMP	Oswego	2	F06	—	92	38	L.S.	MCTA	158	075	—
NY	3644C	NIMP	Oswego	3	F06	—	92	31	L.S.	MCTA	158	075	—
NY	3645C	NIMP	Oswego	4	F06	—	100	28	L.S.	MCTA	158	075	C2
NY	3646C	ORRU	Lovett	3	0	MUL	69	24	—	—	043	087	C2
NY	3647C	ORRU	Lovett	4	0	MUL	177	13	—	—	043	087	C2
NY	3648C	ORRU	Lovett	5	0	MUL	202	10	—	—	043	087	C2

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Table B.1 (Continued)

Utility Boilers Designed for Coal Firing, Currently Burning Oil

Federal Region III

State	I.D.	Company	Plant	Unit	P.F.	A.F.	NPLT MW	Age	Control			County	Comments
									SO ₂	TSP	AQCR		
DE	1001C	DEPL	Edge Moor	1	0	G	70	28	—	—	045	003	P1,C2,NBC
DE	1002C	DEPL	Edge Moor	2	0	—	70	28	—	—	045	003	P1,C2,NBC
DE	1003C	DEPL	Edge Moor	3	0	G	75	25	—	—	045	003	P1,C1,NBC
DE	1004C	DEPL	Edge Moor	4	0	G	177	13	—	—	045	003	P1,C1,NBC
DC	1101C	POEP	Buzzard Point	3	0	—	50	39	—	ESP	047	001	—
DC	1102C	POEP	Buzzard Point	4	0	—	50	37	—	ESP	047	001	—
DC	1103C	POEP	Buzzard Point	5	0	—	50	36	—	ESP	047	001	—
DC	1104C	POEP	Buzzard Point	6	0	—	50	34	—	ESP	047	001	—
MD	2401C	BAGE	Crane C.P.	1	0	C	190	18	L.S.	ESP	115	005	P1,C1,NBC
MD	2402C	BAGE	Crane C.P.	2	0	C	209	16	L.S.	ESP	115	005	P1,C1,NBC
MD	2403C	BAGE	Wagner	1	0	C	133	23	L.S.	ESP	115	003	P1,C1
MD	2404C	BAGE	Wagner	2	0	C	136	20	L.S.	ESP	115	003	P1,C1
MD	2405C	BAGE	Riverside	1	0	C	60	37	L.S.	ESP	115	005	—
MD	2406C	BAGE	Riverside	2	0	C	60	35	L.S.	ESP	115	005	—
MD	2407C	BAGE	Riverside	3	0	C	60	31	L.S.	ESP	115	005	—
MD	2408C	BAGE	Riverside	4	0	C	72	28	L.S.	Mul. Cyc.	115	005	P1,C2,NBC
MD	2409C	BAGE	Riverside	5	0	C	81	26	L.S.	Mul. Cyc.	115	005	P1,C2,NBC
MD	2410C	BAGE	Westport	3	0	C	60	38	L.S.	ESP	115	510	—
MD	2411C	BAGE	Westport	4	0	C	69	29	L.S.	ESP	115	510	—
MD	2412C	BAGE	Gould Street	3	0	C	103	27	L.S.	ESP	115	510	C2
PA	4201C	PHEC	Barbadoes	3	0	NG	66	30	L.S.	COMB	045	091	—
PA	4202C	PHEC	Barbadoes	4	0	NG	66	30	L.S.	COMB	045	091	—
PA	4203C	PHEC	Chester	5	0	NG	50	38	L.S.	COMB	045	045	—
PA	4204C	PHEC	Chester	6	0	NG	80	37	L.S.	COMB	045	045	—
PA	4205C	PHEC	Cromby	2	0	C	230	24	L.S.	COMB	045	029	P2,C1
PA	4206C	PHEC	Delaware	7	0	—	156	26	L.S.	COMB	045	101	C2

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Table B.1 (Continued)

Utility Boilers Designed for Coal Firing, Currently Burning Oil

Federal Region III (concluded)

State	I.D.	Company	Plant	Unit	P.F.	A.F.	NPLT MW	Age	Control		AQCR	County	Comments
									SO ₂	TSP			
PA	4207C	PHEC	Delaware	8	0	—	156	26	L.S.	COMB	045	101	C2
PA	4208C	PHEC	Richmond	9	0	—	190	29	L.S.	—	045	101	—
PA	4209C	PHEC	Schuylkill	1	0	—	190	21	L.S.	—	045	101	—
PA	4210C	PHEC	Schuylkill	3	0	—	50	21	L.S.	—	045	101	—
PA	4211C	PHEC	Southwark	1	0	—	173	32	L.S.	—	045	101	—
PA	4212C	PHEC	Southwark	2	0	—	173	31	L.S.	—	045	101	—
PA	4213C	WEPP	Mitchell	1	F06	C	75	31	L.S.	—	197	125	—
PA	4214C	WEPP	Mitchell	2	F06	C	75	34	L.S.	—	197	125	—
PA	4215C	WEPP	Springdale	7	F06	—	75	34	L.S.	—	197	003	—
PA	4216C	WEPP	Springdale	8	F06	—	141	25	L.S.	OTHE	197	003	—
VA	5101C	VIEP	Chesterfield	1	F06	C	63	35	L.S.	OTHE	225	041	—
VA	5102C	VIEP	Chesterfield	2	F06	C	69	30	L.S.	ESP	225	041	C1
VA	5103C	VIEP	Chesterfield	3	F06	C	113	27	L.S.	COMB	225	041	P1,C2
VA	5104C	VIEP	Chesterfield	4	F06	C	188	19	L.S.	ESP	225	041	P1,C1
VA	5105C	VIEP	Portsmouth	1	F06	C	113	26	L.S.	MCAX	223	550	P1,C2,NBC
VA	5106C	VIEP	Portsmouth	2	F06	C	113	25	L.S.	MCAX	223	550	P1,C2,NBC
VA	5107C	VIEP	Portsmouth	3	F06	C	185	20	L.S.	MCAX	223	550	P1,C1,NBC
VA	5108C	VIEP	Portsmouth	4	F06	C	239	17	L.S.	ESP	223	550	P1,C1,NBC
VA	5109C	VIEP	Possum Point	1	F06	C	69	28	L.S.	ESP	047	153	—
VA	5110C	VIEP	Possum Point	2	F06	C	69	28	L.S.	ESP	047	153	C2
VA	5111C	VIEP	Possum Point	3	F06	C	114	24	L.S.	ESP	047	153	C1
VA	5112C	VIEP	Possum Point	4	F06	C	239	17	L.S.	ESP	047	153	C1
VA	5113C	VIEP	Yorktown	1	F06	C	188	22	L.S.	COMB	223	199	C2,NBC
VA	5114C	VIEP	Yorktown	2	F06	C	188	20	L.S.	MCAX	223	199	C2,NBC

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Table B.1 (Continued)
Utility Boilers Designed for Coal Firing, Currently Burning Oil

Federal Region IV

State	I.D.	Company	Plant	Unit	P.F.	A.F.	NPLT MW	Age	Control		AQCR	County	Comments
									SO ₂	TSP			
FL	1201C	TAEC	Gannon, F.J.	1	F06	—	125	22	L.S.	ESP	052	057	C1
FL	1202C	TAEC	Gannon, F.J.	2	F06	—	125	21	L.S.	ESP	052	057	C1
FL	1203C	TAEC	Gannon, F.J.	3	F06	—	180	18	L.S.	ESP	052	057	—
FL	1204C	TAEC	Gannon, F.J.	4	F06	—	188	16	L.S.	ESP	052	057	—
GA	1301C	GEPC	Atkinson	1	F02	—	60	49	—	—	056	067	—
GA	1302C	GEPC	Atkinson	2	F02	—	60	38	—	—	056	067	—
GA	1303C	GEPC	Atkinson	3	F02	—	60	34	—	—	056	067	—
GA	1304C	GEPC	Atkinson	4	F02	—	60	31	—	—	056	067	—
GA	1305C	GEPC	McManus	1	F06	—	50	27	—	—	049	127	P1,C2,NBC
GA	1306C	GEPC	McManus	2	F06	—	75	20	—	—	049	127	P1,C2,NBC
GA	1307C	SAEP	Port Wentworth	1	0	G	50	10	—	—	058	051	P1,C2,N
GA	1308C	SAEP	Port Wentworth	2	0	G	54	18	—	—	058	051	P1,C2,N
GA	1309C	SAEP	Port Wentworth	3	0	G	104	14	—	—	058	051	P1,C2,N
GA	1310C	SAEP	Port Wentworth	4	0	G	126	7	—	—	058	051	C2
MS	7801C	MIPO	Andrus	1	0	—	781	4	—	—	134	151	—
SC	4501C	SOCA	Jefferies	1	F06	—	50	26	—	—	199	015	—
SC	4502C	SOCA	Jefferies	2	F06	—	50	27	—	—	199	015	—

Federal Region V

IL	1701C	COEC	Ridgeland	1	0	—	173	18	L.S.	ESP	067	031	C2
IL	1702C	COEC	Ridgeland	2	0	—	173	19	L.S.	ESP	067	031	C2
IL	1703C	COEC	Ridgeland	3	0	—	173	16	L.S.	ESP	067	031	C2
IL	1704C	COEC	Ridgeland	4	0	—	173	14	L.S.	ESP	067	031	C2
IL	1705C	ILPC	Wood River	1	0	G	50	30	—	—	070	119	—
IL	1706C	ILPC	Wood River	2	0	G	50	30	—	—	070	119	—
IL	1707C	ILPC	Wood River	3	0	G	50	29	—	—	070	119	—

(continued on next page)

Table B.1 (Continued)
Utility Boilers Designed for Coal Firing, Currently Burning Oil

Federal Region V (continued)													
State	I.D.	Company	Plant	Unit	P.F.	A.F.	NPLT MW	Age	Control			County	Comments
									SO ₂	TSP	AQCR		
IL	1708C	UNEC	Venice #2	3	0	G	98	36	L.S.	—	070	119	—
IL	1709C	UNEC	Venice #2	4	0	G	98	31	L.S.	—	070	119	—
IL	1710C	UNEC	Venice #2	5	0	G	98	29	L.S.	—	070	119	—
IL	1711C	UNEC	Venice #2	6	0	G	100	29	L.S.	—	070	119	—
MI	2601C	COPR	Morrow BE	3	0	G	50	38	—	—	125	077	—
MI	2602C	COPR	Morrow BE	4	0	G	66	30	—	—	125	077	—
MI	2603C	COPR	Weadock JC	3	0	—	50	37	—	—	125	017	—
MI	2604C	COPR	Weadock JC	4	0	—	50	31	—	—	125	017	—
MI	2605C	COPR	Weadock JC	5	0	—	66	30	—	—	125	017	—
MI	2606C	COPR	Weadock, JC	6	0	—	66	30	—	—	125	017	—
MI	2607C	DETR	Mistersky	6	F06	—	50	21	L.S.	COMB	123	163	—
MI	2608C	DEEC	Connors Creek	12	F02	NG	60	40	L.S.	—	123	163	—
MI	2609C	DEEC	Connors Creek	13	F02	NG	60	42	L.S.	—	123	163	—
MI	2610C	DEEC	Connors Creek	14	F02	NG	60	43	L.S.	—	123	163	—
MI	2611C	DEEC	Delray	11	F06	NG	50	50	L.S.	—	123	163	—
MI	2612C	DEEC	Delray	12	F06	NG	50	50	L.S.	—	123	163	—
MI	2613C	DEEC	Delray	13	F06	NG	50	46	L.S.	—	123	163	—
MI	2614C	DEEC	Delray	14	F06	NG	75	41	L.S.	—	123	163	—
MI	2615C	DEEC	Delray	15	F06	NG	75	39	L.S.	—	123	163	—
MI	2616C	DEEC	Delray	16	F06	NG	75	37	L.S.	—	123	163	—
MI	2617C	DEEC	River Rouge	1	F06	—	283	23	L.S.	—	123	163	—
MI	2618C	DEEC	River Rouge	3	F06	—	358	21	L.S.	—	123	163	C2
MI	2619C	DEEC	St. Clair	5	F06	—	358	20	L.S.	—	123	147	—
MN	2701C	INPD	Fox Lake	3	0	SUB	81	17	L.S.	ESP	128	091	P1,C2
OH	3901C	CIGE	Miami Fort	3	0	—	65	41	—	—	079	061	—
OH	3902C	CIGE	Miami Fort	4	0	—	65	37	—	—	079	061	—

(continued on next page)

Table B.1 (Concluded)

Utility Boilers Designed for Coal Firing, Currently Burning Oil

Federal Region V (concluded)													
State	I.D.	Company	Plant	Unit	P.F.	A.F.	NPLT MW	Age	Control		AQCR	County	Comments
									SO ₂	TSP			
OH	3903C	CLEI	Ashtabula	B1	0	—	50	49	L.S.	—	079	007	—
OH	3904C	CLEI	Ashtabula	B2	0	—	50	49	L.S.	—	079	007	—
OH	3905C	CLEI	Ashtabula	B3	0	—	50	48	L.S.	—	079	007	—
OH	3906C	CLEI	Ashtabula	B4	0	—	50	41	L.S.	—	079	007	—
OH	3907C	CLEI	Avon Lakes	5	0	—	50	36	L.S.	—	174	004	—
OH	3908C	CLEI	Lake Shore	14	0	—	60	38	H.S.	—	174	004	—
OH	3909C	CLEI	Lake Shore	15	0	—	60	37	H.S.	—	174	004	—
OH	3910C	CLEI	Lake Shore	16	0	—	69	18	H.S.	—	174	004	—
OH	3911C	CLEI	Lake Shore	17	0	—	69	18	H.S.	—	174	004	—
WI	5501C	WIEP	Lake Side	9	0	—	60	51	—	—	239	79	—
WI	5502C	WIEP	Lake Side	11	0	—	60	44	—	—	239	79	—
Federal Region VI													
AR	0501C	ARPL	Moses, Ham	1	0	—	69	28	—	—	020	123	—
AR	0502C	ARPL	Moses, Ham	2	0	—	69	28	—	—	020	123	—
AR	0503C	ARPL	Ritchie, R.E.	1	0	G	359	18	—	—	020	107	—
AR	3504C	ARPL	Ritchie, R.E.	2	0	G	545	11	—	—	020	107	—
LA	2201C	LOPI	Waterford	2	0	G	446	3	L.S.	OTHE	106	089	—
Federal VIII													
CO	0801C	PSCO	Zuni	2	F06	NG	75	25	L.S.	—	036	031	C2

Table B.2
Utility Boilers Designed for Oil Firing, Currently Burning Oil

Federal Region I													
State	I.D.	Company	Plant	Unit	P.F.	A.F.	NPLT MW	Age	Control		AQCR	County	Comments
									SO ₂	TSP			
CT	0901	COLP	Montville	6	0	—	383	8	—	—	041	011	—
CT	0902	HAEL	Middletown	4	0	—	400	6	—	—	042	007	P2
CT	0903	UNIC	New Haven Har.	1	0	—	465	4	L.S.	ESP	042	009	—
ME	2301	CEMP	Wyman, W.F.	3	0	—	121	14	L.S.	ESP	110	005	—
ME	2302	CEMP	Wyman, W.F.	4	0	—	305	1	L.S.	ESP	110	005	—
MA	2501	BOEC	Mystic	7	0	—	617	4	—	—	119	017	—
MA	2502	CACO	Canal	2	0	—	530	3	L.S.	ESP	120	001	—
MA	2503	NEEP	Brayton Point	4	F06	—	437	5	L.S.	ESP	120	005	—
MA	2504	NEEP	Salem Harbor	4	F06	—	476	7	L.S.	ESP	119	009	—
NH	3301	PSNH	Newington	1	F06	—	414	5	L.S.	ESP	121	015	—
Federal Region II													
NJ	3401	PSEG	Linden	1	0	—	260	22	L.S.	—	043	039	—
NJ	3402	PSEG	Linden	2	0	—	260	22	L.S.	—	043	039	—
NJ	3403	PSEG	Linden	4	0	—	93	7	L.S.	—	043	039	—
NJ	3404	PSEG	Sewaren	5	F06	—	389	17	L.S.	—	043	023	—
NJ	3405	ATCE	England, B.L.	3	0	—	163	5	L.S.	Dust	150	009	—
NY	3601	CEHG	Roseton	1	0	—	621	5	L.S.	Dust	161	071	—
NY	3602	CEHG	Roseton	2	0	—	621	5	L.S.	Dust	161	071	—
NY	3603	COEN	Ravenswood	1	0	G	400	16	L.S.	—	043	081	—
NY	3604	COEN	Ravenswood	2	0	G	400	16	L.S.	—	043	081	—
NY	3605	LOIL	Northport	1	0	—	387	12	Other	MCTA	043	103	—
NY	3606	LOIL	Northport	2	0	—	387	11	Other	MCTA	043	103	—
NY	3607	LOIL	Northport	3	0	—	387	7	Other	MCTA	043	103	—
NY	3608	LOIL	Northport	4	0	—	387	2	Other	MCTA	043	103	—
NY	3609	NIMP	Oswego	5	F06	—	902	4	L.S.	ESP	158	075	—

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Table B.2 (Continued)
Utility Boilers Designed for Oil Firing, Currently Burning Oil

Federal Region II (concluded)													
State	I.D.	Company	Plant	Unit	P.F.	A.F.	NPLT MW	Age	Control			County	Comments
									SO ₂	TSP	AQCR		
NY	3610	ORRU	Bowline Point	1	0	—	621	7	L.S.	ESP	043	087	—
NY	3611	ORRU	Bowline Point	2	0	—	621	5	L.S.	ESP	043	087	—
NY	3612	POAS	Astoria	6	0	4	826	2	L.S.	ESP	043	087	—
Federal Region III													
DE	1001	DEPL	Edge Moor	5	0	—	446	6	—	—	045	003	—
DE	1002	DODE	McKee Runn	3	0	G	134	4	—	Dust	046	001	—
DC	1101	POEP	Benning	13	0	—	55	32	2.5	ESP	047	001	—
DC	1102	POEP	Benning	15	0	—	289	11	2.5	—	047	001	—
DC	1103	POEP	Benning	16	0	—	289	7	2.5	—	047	001	—
MD	2401	BAGE	Wagner	4	0	—	414	7	L.S.	Mul. Cycl.	115	003	—
MD	2402	POEP	Chalk Point	3	F06	—	660	4	—	VENT	047	033	—
MD	2403	DEPM	Vienna	8	F06	—	162	8	—	MCTA	114	019	—
PA	4201	PEPL	Martins Creek	3	F06	0	850	4	L.S.	—	151	095	—
PA	4202	PEPL	Martins Creek	4	F06	0	850	2	L.S.	—	151	095	—
PA	4203	PHEC	Eddystone	3	F06	—	391	5	L.S.	—	045	045	—
PA	4204	PHEC	Eddystone	4	0	—	391	3	L.S.	ESP	045	045	—
VA	5101	VIEP	Possum Point	5	F06	—	845	4	L.S.	MCAX	047	153	—
VA	5102	VIEP	Yorktown	3	0	—	882	5	L.S.	MCAX	223	199	—
Federal Region IV													
FL	1201	FLPL	Cape Canaveral	1	F06	NG	402	14	L.S.	Dust	048	009	—
FL	1202	FLPL	Cape Canaveral	2	F06	NG	402	10	L.S.	Dust	048	009	—
FL	1203	FLPL	Cutler	4	F06	NG	69	27	L.S.	Dust	050	025	—
FL	1204	FLPL	Cutler	5	F06	NG	75	25	L.S.	Dust	050	025	—
FL	1205	FLPL	Cutler	6	F06	NG	161	24	—	—	050	025	—

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Table B.2 (Continued)

Utility Boilers Designed for Oil Firing, Currently Burning Oil

Federal Region IV (continued)

State	I.D.	Company	Plant	Unit	P.F.	A.F.	NPLT MW	Age	Control			County	Comments
									SO ₂	TSP	AQCR		
FL	1206	FLPL	Fort Meyers	1	F06	—	156	21	L.S.	Dust	051	071	—
FL	1207	FLPL	Fort Meyers	2	F06	—	402	10	L.S.	Dust	051	071	—
FL	1208	FLPL	Lauderdale	4	F06	NG	156	22	L.S.	Dust	050	011	—
FL	1209	FLPL	Lauderdale	5	F06	NG	156	21	L.S.	Dust	050	011	—
FL	1210	FLPL	Port Everglades	1	F06	NG	225	19	L.S.	Dust	050	011	—
FL	1211	FLPL	Port Everglades	2	F06	NG	225	18	L.S.	Dust	050	011	—
FL	1212	FLPL	Port Everglades	3	F06	NG	402	15	L.S.	Dust	050	011	—
FL	1213	FLPL	Port Everglades	4	F06	NG	402	14	L.S.	Dust	050	011	—
FL	1214	FLPL	Palatka	2	F06	NG	75	23	L.S.	—	049	107	—
FL	1215	FLPL	Riviera	2	F06	NG	75	23	—	—	050	099	—
FL	1216	FLPL	Riviera	3	F06	NG	310	17	L.S.	Dust	050	099	—
FL	1217	FLPL	Riviera	4	F06	NG	310	16	L.S.	Dust	050	099	—
FL	1218	FLPL	Sanford	3	F06	NG	156	20	L.S.	Dust	048	127	—
FL	1219	FLPL	Sanford	4	F06	NG	436	7	L.S.	Dust	048	127	—
FL	1220	FLPL	Sanford	5	F06	NG	436	6	L.S.	Dust	048	127	—
FL	1221	FLPL	Turkey Point	1	F06	NG	402	12	L.S.	Dust	050	025	—
FL	1222	FLPL	Turkey Point	2	F06	NG	402	11	L.S.	Dust	050	025	—
FL	1223	FLPL	Manatee	1	0	—	863	3	L.S.	Dust	052	081	—
FL	1224	FLPL	Manatee	2	F06	—	863	2	L.S.	Dust	052	081	—
FL	1225	FLPC	Turner, G.E.	3	F06	NG	79	24	—	—	048	127	—
FL	1226	FLPC	Turner, G.E.	4	F06	NG	82	20	—	—	048	127	—
FL	1227	FLPC	Bartow, P.L.	1	F06	—	128	21	—	—	052	103	—
FL	1228	FLPC	Bartow, P.L.	2	F06	NG	128	18	—	—	052	103	—
FL	1229	FLPC	Bartow, P.L.	3	F06	NG	239	16	—	—	052	103	—
FL	1230	FLPC	Suwanee Riv.	3	F06	NG	75	23	—	—	049	121	—
FL	1231	FLPC	Anclote	1	F06	—	556	5	—	—	052	101	—

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Table B.2 (Continued)

Utility Boilers Designed for Oil Firing, Currently Burning Oil

Federal Region IV (concluded)

State	I.D.	Company	Plant	Unit	P.F.	A.F.	NPLT MW	Age	Control		AQCR	County	Comments
									SO ₂	TSP			
FL	1232	FLPC	Anclote	2	F06	—	556	1	PNS	PNS	052	101	—
FL	1233	FOPL	King	8	F06	NG	56	3	PNS	PNS	050	111	—
FL	1234	GAMW	Deerhaven	1	F06	NG	83	7	—	—	049	001	—
FL	1235	JACO	Kennedy, J.D.	8	F06	—	50	24	L.S.	—	049	031	—
FL	1236	JACO	Kennedy, J.D.	9	F06	—	50	21	L.S.	—	049	031	—
FL	1237	JACO	Kennedy, J.D.	10	F06	—	150	18	L.S.	—	049	031	—
FL	1238	JACO	Northside	1	F06	—	298	13	L.S.	—	049	031	—
FL	1239	JACO	Northside	2	F06	—	298	7	L.S.	—	049	031	—
FL	1240	JACO	Northside	3	F06	—	564	2	L.S.	—	049	031	—
FL	1241	JACO	Southside	3	F06	—	50	24	L.S.	—	049	031	—
FL	1242	JACO	Southside	4	F06	—	75	21	L.S.	—	049	031	—
FL	1243	JACO	Southside	5	F06	—	157	15	L.S.	—	049	031	—
FL	1244	LALW	Larson Memorial	7	F06	NG	53	13	—	—	092	105	—
FL	1245	LALW	McIntosh, C.D.	1	F06	NG	103	9	—	—	092	105	—
FL	1246	LALW	McIntosh, C.D.	2	F06	NG	126	3	L.S.	—	092	105	—
FL	1247	ORLA	Indian River	1	F06	NG	87	19	L.S.	—	048	009	—
FL	1248	ORLA	Indian River	2	F06	NG	208	15	L.S.	—	048	009	—
FL	1249	ORLA	Indian River	3	F06	NG	344	5	L.S.	—	048	009	—
FL	1250	TALL	Hopkins, Arvah	1	0	NG	75	8	OTH	—	049	073	—
FL	1251	TALL	Hopkins, Arvah	2	F06	G	237	2	L.S.	—	049	073	—
FL	1252	TALL	Purdon, S.O.	7	0	NG	50	13	OTH	—	049	129	—
FL	1257	TAEC	Hookers Point	5	0	—	82	24	L.S.	OTH	049	057	—
FL	1258	VEBM	Municipal Point	4	F06	NG	56	3	L.S.	—	—	061	—
GA	1301	SAEP	Effingham Station	1	0	—	163	0	—	—	058	103	—
MS	2801	MIPR	Daniel, Victor J.	1	0	—	548	2	HS	ESP	005	059	—
SC	4501	SOCG	Williams	1	F06	—	633	6	L.S.	MCAX	199	015	—

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Table B.2 (Continued)

Utility Boilers Designed for Oil Firing, Currently Burning Oil

Federal Region V

State	I.D.	Company	Plant	Unit	P.F.	A.F.	NPLT MW	Age	Control		AQCR	County	Comments
									SO ₂	TSP			
IL	1701	CEIP	Meredosia	4	0	—	200	4	L.S.	—	075	137	—
IL	1702	COEC	Collins	1	0	—	545	1	L.S.	PNS	067	063	—
IL	1703	COEC	Collins	2	0	—	545	2	—	PNS	067	063	—
IL	1704	COEC	Collins	3	0	—	519	2	—	PNS	067	063	—
IL	1705	COEC	Collins	4	0	—	520	1	—	PNS	067	063	FC
IL	1706	COEC	Collins	5	0	—	520	1	—	PNS	067	063	FC
IN	1801	INME	Twin Branch	4	F02	—	85	35	—	—	082	141	—
IN	1802	INME	Twin Branch	5	F02	—	133	30	—	—	125	017	—
MI	2601	COPR	Karn, DE	3	0	—	605	4	—	—	125	017	—
MI	2602	COPR	Karn, DE	4	0	—	632	2	—	—	125	017	—
MI	2603	DEEC	Enrico, Fermi	1	F02	—	158	13	L.S.	—	124	115	—

Federal Region VI

AR	0501	ARPL	Lynch, Cecil	2	02	G	69	30	—	—	016	119	—
AR	0502	ARPL	Lynch, Cecil	3	02	G	156	25	—	—	016	119	—
AR	0503	ARPL	Lake Catherine	3	0	G	113	26	—	—	016	059	—
AR	0504	ARPL	Lake Catherine	4	0	G	552	9	—	—	016	059	—
LA	2201	GUSU	Willow Glen	5	0	—	592	3	CB	OTHE	106	047	—
NM	3501	ELPE	Rio Grande	6	0	NG	50	22	—	—	153	013	—
NM	3502	ELPE	Rio Grande	7	0	NG	50	21	—	—	153	013	—
NM	3503	ELPE	Rio Grande	8	0	NG	166	7	L.S.	—	153	013	—
TX	4801	HOLP	Cedar Bayou	3	0	G	750	5	—	—	216	071	—
TX	4802	HOLP	Greens Bayou	5	0	G	446	6	—	—	216	201	—
TX	4803	SOEP	Lone Star	1	0	G	50	25	L.S.	—	022	343	—

Federal Region VIII

SD	4601	NOSW	Pathfinder	1	F06	NG	75	13	L.S.	—	087	099	—
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Table B.2 (Continued)
Utility Boilers Designed for Oil Firing, Currently Burning Oil

Federal Region IX

State	I.D.	Company	Plant	Unit	P.F.	A.F.	NPLT MW	Age	Control		AQCR	County	Comments
									SO ₂	TSP			
AZ	0401	ARPS	Ocotillo	1	0	G	110	19	—	—	015	013	—
AZ	0402	ARPS	Ocotillo	2	0	G	110	19	—	—	015	013	—
AZ	0403	ARPS	Phoenix	6	0	0	68	29	—	—	015	013	—
AZ	0404	ARPS	Saguaro	1	0	G	125	25	—	—	015	021	—
AZ	0405	ARPS	Saguaro	2	0	G	100	24	—	—	015	021	—
AZ	0406	ARPS	Yuma Axis	1	0	0	75	20	—	—	013	027	—
AZ	0407	SARV	Agua Fria	1	F06	NG	114	21	—	—	015	013	—
AZ	0408	SARV	Agua Fria	2	F06	NG	114	22	—	—	015	013	—
AZ	0409	SARV	Agua Fria	3	F06	NG	163	18	—	—	015	013	—
AZ	0410	SARV	Kyrene	2	0	NG	74	25	—	—	015	013	—
AZ	0411	TUGE	De Moss Petrie	4	0	G	58	25	—	—	015	019	—
AZ	0412	TUGE	Irvington	1	0	G	109	21	—	—	015	019	—
AZ	0413	TUGE	Irvington	2	0	G	109	19	—	—	015	019	—
AZ	0414	TUGE	Irvington	3	0	G	114	17	—	—	015	019	—
AZ	0415	TUGE	Irvington	4	0	G	173	12	—	—	015	019	—
CA	0601	BRUB	Olive	2	0	G	60	15	—	—	024	037	—
CA	0602	GLPS	Grayson	4	0	G	50	20	L.S.	BAGH	024	037	—
CA	0603	GLPS	Grayson	5	0	G	50	15	L.S.	BAGH	024	037	—
CA	0604	IMID	El Centro	3	0	G	50	22	L.S.	—	033	025	—
CA	0605	IMID	El Centro	4	0	G	82	11	L.S.	—	033	025	—
CA	0606	LOAN	Harbor	1	F06	NG	65	35	L.S.	—	024	037	—
CA	0607	LOAN	Harbor	2	F06	NG	65	31	L.S.	—	024	037	—
CA	0608	LOAN	Harbor	3	F06	NG	86	30	L.S.	—	024	037	—
CA	0609	LOAN	Harbor	4	F06	NG	86	30	L.S.	—	024	037	—
CA	0610	LOAN	Harbor	5	F06	NG	86	30	L.S.	—	024	037	—
CA	0611	LOAN	Haynes	1	0	NG	230	17	L.S.	—	024	037	—

(continued on next page)

Table B.2 (Continued)

Utility Boilers Designed for Oil Firing, Currently Burning Oil

Federal Region IX (continued)

State	I.D.	Company	Plant	Unit	P.F.	A.F.	NPLT MW	Age	Control			County	Comments
									SO ₂	TSP	AQCR		
CA	0612	LOAN	Haynes	2	0	NG	230	16	L.S.	—	024	037	—
CA	0613	LOAN	Haynes	3	0	NG	230	15	L.S.	—	024	037	—
CA	0614	LOAN	Haynes	4	0	NG	230	14	L.S.	—	024	037	—
CA	0615	LOAN	Haynes	5	0	NG	343	13	L.S.	—	024	037	—
CA	0616	LOAN	Haynes	6	0	NG	343	12	L.S.	—	024	037	—
CA	0617	LOAN	Scattergood	1	0	NG	163	21	L.S.	—	024	037	—
CA	0618	LOAN	Scattergood	2	0	NG	163	20	L.S.	DUST	024	037	—
CA	0619	LOAN	Valley	1	0	NG	100	25	L.S.	CYCL	024	037	—
CA	0620	LOAN	Valley	2	F06	NG	100	25	L.S.	CYCL	024	037	—
CA	0621	LOAN	Valley	3	0	NG	173	24	L.S.	CYCL	024	037	—
CA	0622	LOAN	Valley	4	0	NG	173	23	L.S.	CYCL	024	037	—
CA	0623	PAGE	Contra Costa	1	0	G	111	28	L.S.	—	030	013	—
CA	0624	PAGE	Contra Costa	2	0	G	111	28	L.S.	—	030	013	—
CA	0625	PAGE	Contra Costa	3	0	G	111	28	L.S.	—	030	013	—
CA	0626	PAGE	Contra Costa	4	0	G	113	26	L.S.	—	030	013	—
CA	0627	PAGE	Contra Costa	5	0	G	113	26	L.S.	—	030	013	—
CA	0628	PAGE	Contra Costa	6	0	G	359	15	L.S.	—	030	013	—
CA	0629	PAGE	Contra Costa	7	0	G	359	15	L.S.	—	030	013	—
CA	0630	PAGE	Humboldt Bay	1	0	G	51	23	L.S.	—	026	023	—
CA	0631	PAGE	Humboldt Bay	2	0	G	51	21	L.S.	—	026	023	—
CA	0632	PAGE	Hunters Point	2	0	G	108	31	L.S.	—	030	075	—
CA	0633	PAGE	Hunters Point	3	0	G	108	30	L.S.	—	030	075	—
CA	0634	PAGE	Hunters Point	4	0	G	156	21	L.S.	—	030	075	—
CA	0635	PAGE	Kern	1	0	G	66	31	L.S.	—	031	029	—
CA	0636	PAGE	Kern	2	0	G	100	29	L.S.	—	031	029	—
CA	0637	PAGE	Morro Bay	1	0	G	169	23	L.S.	—	032	079	—

(continued on next page)

Table B.2 (Continued)
Utility Boilers Designed for Oil Firing, Currently Burning Oil

Federal Region IX (continued)

State	I.D.	Company	Plant	Unit	P.F.	A.F.	NPLT MW	Age	Control		AQCR	County	Comments
									SO ₂	TSP			
CA	0638	PAGE	Morro Bay	2	0	G	169	24	L.S.	—	032	053	—
CA	0639	PAGE	Morro Bay	3	0	G	359	17	L.S.	—	032	053	—
CA	0640	PAGE	Morro Bay	4	0	G	359	16	L.S.	—	032	053	—
CA	0641	PAGE	Moss Landing	1	0	G	108	29	L.S.	—	025	053	—
CA	0642	PAGE	Moss Landing	2	0	G	111	29	L.S.	—	025	053	—
CA	0643	PAGE	Moss Landing	3	0	G	108	28	L.S.	—	025	053	—
CA	0644	PAGE	Moss Landing	4	0	G	113	27	L.S.	—	025	053	—
CA	0645	PAGE	Moss Landing	5	0	G	113	27	L.S.	—	025	053	—
CA	0646	PAGE	Moss Landing	6	0	G	812	12	L.S.	VENT	025	053	—
CA	0647	PAGE	Moss Landing	7	0	G	812	11	L.S.	—	025	053	—
CA	0648	PAGE	Pittsburg	1	0	G	156	25	L.S.	—	030	013	—
CA	0649	PAGE	Pittsburg	2	0	G	156	25	L.S.	—	030	013	—
CA	0650	PAGE	Pittsburg	3	0	G	156	25	L.S.	—	030	013	—
CA	0651	PAGE	Pittsburg	4	0	G	156	25	L.S.	—	030	013	—
CA	0652	PAGE	Pittsburg	5	0	G	326	19	L.S.	—	030	013	—
CA	0653	PAGE	Pittsburg	6	0	G	326	18	L.S.	—	030	013	—
CA	0654	PAGE	Pittsburg	7	0	G	751	7	L.S.	—	030	013	—
CA	0655	PAGE	Potrero	1	0	G	50	48	L.S.	—	030	075	—
CA	0656	PAGE	Potrero	2	0	G	50	48	L.S.	—	030	075	—
CA	0657	PAGE	Potrero	3	0	G	218	14	L.S.	—	030	075	—
CA	0658	PASA	Broadway	B2	0	NG	50	22	L.S.	MCAX	024	037	—
CA	0659	PASA	Broadway	B3	0	NG	75	14	L.S.	WECT	024	037	—
CA	0660	SADG	Encina	1	F06	G	110	25	L.S.	OTHE	029	073	—
CA	0661	SADG	Encina	2	F06	G	110	23	L.S.	OTHE	029	073	—
CA	0662	SADG	Encina	3	F06	G	110	21	L.S.	OTHE	029	073	—
CA	0663	SADG	Encina	4	F06	G	306	6	L.S.	OTHE	029	073	—

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Table B.2 (Continued)

Utility Boilers Designed for Oil Firing, Currently Burning Oil

Federal Region IX (continued)

State	I.D.	Company	Plant	Unit	P.F.	A.F.	NPLT MW	Age	Control		AQCR	County	Comments
									SO ₂	TSP			
CA	0664	SADG	Encina	5	0	G	320	1	CB	OTHE	029	073	—
CA	0665	SADG	Silver Gate	2	F02	G	69	31	L.S.	OTHE	029	073	—
CA	0666	SADG	Silver Gate	3	F02	G	69	29	L.S.	OTHE	029	073	—
CA	0667	SADG	Silver Gate	4	F02	G	69	27	L.S.	OTHE	029	079	—
CA	0668	SADG	South Bay	1	F06	G	136	19	L.S.	OTHE	029	073	—
CA	0669	SADG	South Bay	2	F06	G	136	17	L.S.	OTHE	029	073	—
CA	0670	SADG	South Bay	3	F06	G	202	15	L.S.	OTHE	029	073	—
CA	0671	SADG	South Bay	4	F06	G	240	8	L.S.	OTHE	029	073	—
CA	0672	SOCE	Alamitos	1	0	G	163	23	—	—	024	037	—
CA	0673	SOCE	Alamitos	2	0	G	163	22	—	—	024	037	—
CA	0674	SOCE	Alamitos	3	0	G	333	18	—	—	024	037	—
CA	0675	SOCE	Alamitos	4	0	G	333	17	—	—	024	037	—
CA	0676	SOCE	Alamitos	5	0	G	495	13	—	—	024	037	—
CA	0677	SOCE	Alamitos	6	0	G	495	13	—	—	024	037	—
CA	0678	SOCE	Cool Water	1	0	G	65	18	—	—	033	071	—
CA	0679	SOCE	Cool Water	2	0	G	82	15	—	—	033	071	—
CA	0680	SOCE	El Segundo	1	0	G	156	24	—	—	024	037	—
CA	0681	SOCE	El Segundo	2	0	G	156	23	—	—	024	037	—
CA	0682	SOCE	El Segundo	3	0	G	342	15	—	—	024	037	—
CA	0683	SOCE	El Segundo	4	0	G	342	14	—	—	024	037	—
CA	0684	SOCE	Etiwanda	1	0	G	123	26	—	—	024	071	—
CA	0685	SOCE	Etiwanda	2	0	G	123	26	—	—	024	071	—
CA	0686	SOCE	Etiwanda	3	0	G	333	16	—	—	024	071	—
CA	0687	SOCE	Etiwanda	4	0	G	333	16	—	—	024	071	—
CA	0688	SOCE	High Grove	3	0	G	50	26	—	—	024	071	—
CA	0689	SOCE	High Grove	4	0	G	50	24	—	—	024	071	—

(continued on next page)

Table B.2 (Concluded)*Utility Boilers Designed for Oil Firing, Currently Burning Oil*

Federal Region IX (concluded)

State	I.D.	Company	Plant	Unit	P.F.	A.F.	NPLT MW	Age	Control		AQCR	County	Comments
									SO ₂	TSP			
CA	0690	SOCE	Huntington Be.	1	0	G	218	21	—	—	024	059	—
CA	0691	SOCE	Huntington Be.	2	0	G	218	21	—	—	024	059	—
CA	0692	SOCE	Huntington Be.	3	0	G	218	18	—	—	024	059	—
CA	0693	SOCE	Huntington Be.	4	0	G	218	18	—	—	024	059	—
CA	0694	SOCE	Long Beach	10	0	G	90	51	—	—	024	037	—
CA	0695	SOCE	Long Beach	11	0	G	90	49	—	—	024	037	—
CA	0696	SOCE	Mandalay	1	0	G	218	20	—	—	024	111	—
CA	0697	SOCE	Mandalay	2	0	G	218	20	—	—	024	111	—
CA	0698	SOCE	Ormond Beach	1	0	G	806	8	—	—	024	111	—
CA	0699	SOCE	Ormond Beach	2	0	G	806	6	—	—	024	111	—
CA	06100	SOCE	Redondo Beach	1	0	G	66	31	—	—	024	037	—
CA	06101	SOCE	Redondo Beach	2	0	G	69	31	—	—	024	037	—
CA	06102	SOCE	Redondo Beach	3	0	G	66	30	—	—	024	037	—
CA	06103	SOCE	Redondo Beach	4	0	G	69	30	—	—	024	037	—
CA	06104	SOCE	Redondo Beach	5	0	G	156	25	—	—	024	037	—
CA	06105	SOCE	Redondo Beach	6	0	G	163	22	—	—	024	037	—
CA	06106	SOCE	Redondo Beach	7	0	G	495	12	—	—	024	037	—
CA	06107	SOCE	Redondo Beach	8	0	G	495	12	—	—	024	037	—
CA	06108	SOCE	San Bernardino	1	0	G	65	22	—	—	024	071	—
CA	06109	SOCE	San Bernardino	2	0	G	65	21	—	—	024	071	—

Appendix C

Oil-Fired Utility Boiler Data File: Attainment Status, Fuel Consumption, and Capacity Factor

Tables C.1 and C.2 present a compilation of fuel consumption and air quality attainment status data for oil-fired utility boilers. Boilers are identified by region, state, utility, and unit number. Attainment classifications were collected from published EPA data (U.S. EPA, 1978) as well as from Regional EPA Air Emission Offices. Fuel consumption, sulfur content, and capacity factor information was taken from Federal Power Commission Form 67, "Steam Electric Plant Air and Water Quality Control Data," on file at the Energy Information Administration of the Department of Energy. The majority of the Form 67s were for the year 1978. However, in some cases, only the 1977 data were available. These units have a "1977" marked in the "Comments" column. For the most part, fuel consumption figures are applicable to a specific unit; however, some utilities have reported consumption for more than one unit. These are referred to as "Common Fuel Feeder (C.F.F.)" units and are indicated as such in the "Comments" column. The "%S" column refers to the average sulfur

content of fuel burned over a 12 month period.

The one digit attainment designations refer to one of the following classifications:

- 1 - Does not meet primary standards
- 2 - Does not meet secondary standards
- 3 - Cannot be classified
- 4 - Better than national standards

No distinctions are made as to the level of pollutant concentrations recorded in areas designated as nonattainment.

Abbreviations

TSP	Total Suspended Particulates
SO ₂	Sulfur Dioxide (Oxides of Sulfur)
NO ₂	Nitrogen Dioxide (Oxides of Nitrogen)
%S	Percent Sulfur in Fuel
Bbl	Barrel
MCF	Thousand Cubic Feet
CFF	Common Fuel Feeder
NA	Not Available

Table C.1

Attainment and Fuel Data for Coal-Designed Utility Boilers, Currently Firing Oil

Federal Region I														
State	I.D.	Company	Plant	Unit	Attainment			Fuel Consumption					Capacity Factor	Comments
					TSP	SO ₂	NO ₂	Coal 1,000 Tons	%S	Oil 1,000 BBL	%S	Gas 1,000 MCF		
CT	0901C	COLP	Devon	3	1	4	4	—	—	367.7	0.43	—	32.8	—
CT	0902C	COLP	Devon	6	1	4	4	—	—	355.2	0.43	—	32.2	—
CT	0903C	COLP	Devon	7	1	4	4	—	—	731.5	0.43	—	52.4	See footnote 1
CT	0904C	COLP	Devon	8	1	4	4	—	—	560.5	0.43	—	40.5	See footnote 1
CT	0905C	COLP	Montville	5	2	4	4	—	—	1.4	0.43	—	N/A	—
CT	0906C	COLP	Norwalk Harbor	1	2	4	4	—	—	1,520.6	0.43	—	73.3	See footnote 2
CT	0907C	COLP	Norwalk Harbor	2	2	4	4	—	—	1,473.8	0.43	—	67.5	—
CT	0908C	HAEL	Middletown	1	1	4	4	—	—	103.7	0.47	—	11.7	—
CT	0909C	HAEL	Middletown	2	1	4	4	—	—	614.4	0.47	—	37.5	—
CT	0910C	HAEL	Middletown	3	1	4	4	—	—	1,892.1	0.47	—	66.5	—
CT	0911C	UNIL	Bridgeport	1	2	4	4	—	—	501.0	0.3	—	39.9	—
CT	0912C	UNIL	Bridgeport	2	2	4	4	—	—	1,408.0	0.3	—	56.1	—
CT	0913C	UNIL	Bridgeport	3	2	4	4	—	—	3,472.0	0.3	—	61.0	—
MA	2501C	BOEC	Mystic	4	3	4	4	—	—	717.5	0.95	—	35.2	—
MA	2502C	BOEC	Mystic	5	3	4	4	—	—	317.8	0.95	—	15.7	—
MA	2503C	BOEC	Mystic	6	3	4	4	—	—	915.5	0.95	—	42.3	—
MA	2504C	BOEC	New Boston	1	3	4	4	—	—	3,724.7	0.85	—	69.9	—
MA	2505C	BOEC	New Boston	2	3	4	4	—	—	3,122.3	0.85	—	58.9	—
MA	2506C	CACO	Canal	1	3	4	4	—	—	4,890.5	1.0	—	71.6	1977
MA	2507C	HOWP	Mt. Tom	1	3	4	4	—	—	N/A		—	N/A	—
MA	2508C	NEEP	Brayton Point	1	3	4	4	—	—	2,693.3	1.9	—	79.4	—
MA	2509C	NEEP	Brayton Point	2	3	4	4	—	—	2,740.4	1.9	—	82.0	—
MA	2510C	NEEP	Brayton Point	3	3	4	4	—	—	5,568.3	1.9	—	68.3	—
MA	2511C	NEEP	Salem Harbor	1	3	4	3	—	—	608.9	1.4	—	53.1	—
MA	2512C	NEEP	Salem Harbor	2	3	4	3	—	—	682.4	1.4	—	52.3	—
MA	2513C	NEEP	Salem Harbor	3	3	4	3	—	—	1,366.0	1.4	—	68.4	—

(continued on next page)

1 - Does not meet primary standards 2 - Does not meet secondary standards 3 - Can not be classified 4 - Better than national standards

Table C.1 (Continued)

Attainment and Fuel Data for Coal-Designed Utility Boilers, Currently Firing Oil

Federal Region I (concluded)														
State	I.D.	Company	Plant	Unit	Attainment			Fuel Consumption						Comments
					TSP	SO ₂	NO ₂	Coal 1,000 Tons	%S	Oil 1,000 BBL	%S	Gas 1,000 MCF	Capacity Factor	
MA	2514C	WEME	W. Springfield	2	3	4	4	—	—	58.5	.16	—	6.6	1977
MA	2515C	WEME	W. Springfield	3	3	4	4	—	—	591.5	.16	—	47.2	1977
MA	2516C	MOEL	Somerset	5	3	4	4	—	—	6.6	1.72	—	1.8	—
MA	2517C	MOEL	Somerset	6	3	4	4	—	—	74.6	1.72	—	5.4	—
NH	3301C	PSNH	Schiller	4	4	4	4	—	—	206.5	1.71	—	24.6	—
NH	3302C	PSNH	Schiller	5	4	4	4	—	—	193.4	1.71	—	22.7	—
NH	3303C	PSNH	Schiller	6	4	4	4	—	—	191.9	1.71	—	21.0	—
RI	4401C	NAEC	South Street	12	4	4	4	—	—	279.3	0.96	—	29.6	—
Federal Region II														
NJ	3401C	DWOC	Deepwater	1	4	4	4	—	—	568.6	1.4	—	48.0	C.F.F. Units 3,4,5&6*
NJ	3402C	DWOC	Deepwater	3	4	4	4	—	—	485.7	1.4	—	27.0	
NJ	3403C	DWOC	Deepwater	4	4	4	4	—	—	*	1.4	—	*	
NJ	3404C	DWOC	Deepwater	6	4	4	4	—	—	*	1.4	—	*	
NJ	3405C	PSEG	Bergen	1	4	4	4	—	—	2,658.1	0.28	105.3	69.7	—
NJ	3406C	PSEG	Bergen	2	4	4	4	—	—	2,103.3	0.28	43.2	57.3	—
NJ	3407C	PSEG	Burlington	6	4	4	4	—	—	N/A	0.28	—	N/A	—
NJ	3408C	PSEG	Burlington	7	4	4	4	—	—	1,139.2	0.28	—	49.3	—
NJ	3409C	PSEG	Hudson	1	1	4	4	—	—	2,462.2	0.28	—	46.8	—
NJ	3410C	PSEG	Kearney	7	4	4	4	—	—	846.9	0.28	—	50.9	—
NJ	3411C	PSEG	Kearney	8	4	4	4	—	—	962.5	0.28	—	54.1	—
NJ	3412C	PSEG	Sewaren	1	4	4	4	—	—	484.8	0.29	1.0	28.2	—
NJ	3413C	PSEG	Sewaren	2	4	4	4	—	—	527.4	0.29	1.5	24.7	—
NJ	3414C	PSEG	Sewaren	3	4	4	4	—	—	460.9	0.29	—	29.1	—
NJ	3415C	PSEG	Sewaren	4	4	4	4	—	—	747.5	0.29	1.8	41.1	—
NJ	3416C	JECP	Werner	4	4	4	4	—	—	432.0	0.3	—	54.8	—

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1 - Does not meet primary standards 2 - Does not meet secondary standards 3 - Can not be classified 4 - Better than national standards

Table C.1 (Continued)
Attainment and Fuel Data for Coal-Designed Utility Boilers, Currently Firing Oil

Federal Region II (continued)														
State	I.D.	Company	Plant	Unit	Attainment			Fuel Consumption					Capacity Factor	Comments
					TSP	SO ₂	NO ₂	Coal 1,000 Tons	%S	Oil 1,000 BBL	%S	Gas 1,000 MCF		
NJ	3417C	JECF	Gilbert	1	4	4	4	—	—	45.0	0.9	—	4.2	C.F.F. Units 1&2*
NJ	3418C	JECF	Gilbert	2	4	4	4	—	—	*	0.9	—	*	—
NJ	3419C	JECF	Gilbert	3	4	4	4	—	—	599.0	0.9	—	51.3	—
NJ	3420C	JECF	Sayreville	4	4	4	4	—	—	N/A	0.3	—	N/A	—
NJ	3421C	JECF	Sayreville	5	4	4	4	—	—	343.0	0.3	—	12.4	—
NY	3601C	CEHG	Danskammer	1	4	4	4	—	—	268.0	0.98	21.1	27.3	—
NY	3602C	CEHG	Danskammer	2	4	4	4	—	—	258.0	0.98	8.1	26.3	—
NY	3603C	CEHG	Danskammer	3	4	4	4	—	—	755.0	0.98	9.6	41.2	—
NY	3604C	CEHG	Danskammer	4	4	4	4	—	—	1,931.0	0.98	7.0	64.3	—
NY	3605C	COEN	Arthur Kill	2	3	4	4	—	—	1,785.7	0.26	—	36.7	—
NY	3606C	COEN	Arthur Kill	3	3	4	4	—	—	3,193.6	0.26	—	47.2	—
NY	3607C	COEN	Astoria	1	3	4	4	—	—	1,056.7	0.25	37.0	38.7	—
NY	3608C	COEN	Astoria	2	3	4	4	—	—	976.1	0.25	18.8	40.3	—
NY	3609C	COEN	Astoria	3	3	4	4	—	—	2,042.8	0.25	57.6	39.0	—
NY	3610C	COEN	Astoria	4	3	4	4	—	—	1,002.1	0.25	62.2	20.3	—
NY	3611C	COEN	Astoria	5	3	4	4	—	—	1,918.4	0.25	50.6	36.2	—
NY	3612C	COEN	East River	5	3	4	4	—	—	524.7	0.26	13.0	37.0	—
NY	3613C	COEN	East River	6	3	4	4	—	—	877.4	0.26	11.2	50.9	—
NY	3614C	COEN	East River	7	3	4	4	—	—	1,139.2	0.26	23.7	41.9	—
NY	3615C	COEN	Ravenswood	3	3	4	4	—	—	2,897.3	0.26	120.1	22.8	—
NY	3616C	COEN	Hudson Ave.	5	3	4	4	—	—	866.0	0.26	—	N/A	C.F.F. All Units*
NY	3617C	COEN	Hudson Ave.	6	3	4	4	—	—	*	0.26	—	—	—
NY	3618C	COEN	Hudson Ave.	7	3	4	4	—	—	*	0.26	—	—	—
NY	3619C	COEN	Hudson Ave.	8	3	4	4	—	—	*	0.26	—	—	—
NY	3620C	COEN	Hudson Ave.	9	3	4	4	—	—	*	0.26	—	—	—
NY	3621C	COEN	Waterside	4	3	4	4	—	—	2,794.5	0.24	383.3	N/A	C.F.F. All Units*

(continued on next page)

1 - Does not meet primary standards

2 - Does not meet secondary standards

3 - Can not be classified

4 - Better than national standards

Table C.1 (Continued)

Attainment and Fuel Data for Coal-Designed Utility Boilers, Currently Firing Oil

Federal Region II (concluded)														
State	I.D.	Company	Plant	Unit	Attainment			Fuel Consumption					Capacity Factor	Comments
					TSP	SO ₂	NO ₂	Coal 1,000 Tons	%S	Oil 1,000 BBL	%S	Gas 1,000 MCF		
NY	3622C	COEN	Waterside	5	3	4	4	—	—	*	0.24	*	—	—
NY	3623C	COEN	Waterside	6	3	4	4	—	—	*	0.24	*	—	—
NY	3624C	COEN	Waterside	8	3	4	4	—	—	*	0.24	*	—	—
NY	3625C	COEN	Waterside	9	3	4	4	—	—	*	0.24	*	—	—
NY	3626C	COEN	Waterside	14	3	4	4	—	—	*	0.24	*	—	—
NY	3627C	COEN	Waterside	15	3	4	4	—	—	*	0.24	*	—	—
NY	3628C	COEN	59th Street	13	3	4	4	—	—	N/A	0.28	—	N/A	—
NY	3629C	COEN	74th Street	9	3	4	4	—	—	701.4	0.26	—	N/A	C.F.F. Units 9&10*
NY	3630C	COEN	74th Street	10	3	4	4	—	—	*	0.26	—	—	—
NY	3631C	LOIL	Far Rockaway	4	4	4	4	—	—	486.0	0.3	36.0	29.0	—
NY	3632C	LOIL	Glenwood	4	4	4	4	—	—	581.0	0.3	14.0	29.0	—
NY	3633C	LOIL	Glenwood	5	4	4	4	—	—	413.0	0.3	4.0	20.0	—
NY	3634C	LOIL	Barrett, E.F.	1	4	4	4	—	—	1,657.0	0.3	9.0	66.0	—
NY	3635C	LOIL	Barrett, E.F.	2	4	4	4	—	—	1,600.0	0.3	9.0	66.0	—
NY	3636C	LOIL	Port Jefferson	3	4	4	4	—	—	1,924.0	2.4	—	78.0	—
NY	3637C	LOIL	Port Jefferson	4	4	4	4	—	—	1,877.0	2.4	—	77.0	—
NY	3638C	NIMP	Albany	1	2	4	4	—	—	803.1	1.97	—	61.5	—
NY	3639C	NIMP	Albany	2	2	4	4	—	—	961.2	1.97	—	72.4	—
NY	3640C	NIMP	Albany	3	2	4	4	—	—	975.4	1.97	—	77.0	—
NY	3641C	NIMP	Albany	4	2	4	4	—	—	957.7	1.97	—	73.8	—
NY	3642C	NIMP	Oswego	1	4	4	4	—	—	334.2	2.65	—	17.0	—
NY	3643C	NIMP	Oswego	2	4	4	4	—	—	435.7	2.65	—	28.6	—
NY	3644C	NIMP	Oswego	3	4	4	4	—	—	583.3	2.65	—	43.6	—
NY	3645C	NIMP	Oswego	4	4	4	4	—	—	746.4	2.65	—	72.2	—
NY	3646C	ORRU	Lovett	3	4	4	4	—	—	104.0	0.27	3.4	8.6	—
NY	3647C	ORRU	Lovett	4	4	4	4	—	—	597.2	0.27	12.2	20.9	—
NY	3648C	ORRU	Lovett	5	4	4	4	—	—	1,054.4	0.27	78.2	32.0	—

(continued on next page)

1 - Does not meet primary standards

2 - Does not meet secondary standards

3 - Can not be classified

4 - Better than national standards

Table C.1 (Continued)
Attainment and Fuel Data for Coal-Designed Utility Boilers, Currently Firing Oil

Federal Region III														
State	I.D.	Company	Plant	Unit	Attainment			Fuel Consumption					Capacity Factor	Comments
					TSP	SO ₂	NO ₂	Coal 1,000 Tons	%S	Oil 1,000 BBL	%S	Gas 1,000 MCF		
DE	1001C	DEPL	Edge Moor	1	3	4	4	—	—	2,723.0	0.962	—	58.5	—
DE	1002C	DEPL	Edge Moor	2	3	4	4	—	—	1,785.0	0.962	—	39.2	—
DE	1003C	DEPL	Edge Moor	3	3	4	4	—	—	2,644.7	0.962	—	57.7	—
DE	1004C	DEPL	Edge Moor	4	3	4	4	—	—	626.9	0.962	—	70.1	—
DC	1101C	POEP	Buzzard Point	3	2	4	4	—	—	661.0	1.01	—	14.9	C.F.F. All Units*
DC	1102C	POEP	Buzzard Point	4	2	4	4	—	—	*	1.01	—	*	—
DC	1103C	POEP	Buzzard Point	5	2	4	4	—	—	*	1.01	—	*	—
DC	1104C	POEP	Buzzard Point	6	2	4	4	—	—	*	1.01	—	*	—
MD	2401C	BAGE	Crane C.P.	1	4	4	4	—	—	1,835.5	1.0	—	61.5	—
MD	2402C	BAGE	Crane C.P.	2	4	4	4	—	—	1,529.7	1.0	—	57.5	—
MD	2403C	BAGE	Wagner	1	2	4	4	—	—	784.0	1.0	—	39.3	—
MD	2404C	BAGE	Wagner	2	2	4	4	—	—	1,167.2	1.0	—	56.3	—
MD	2405C	BAGE	Riverside	1	2	4	4	—	—	231.1	0.9	—	21.6	—
MD	2406C	BAGE	Riverside	2	2	4	4	—	—	312.3	0.9	—	31.1	—
MD	2407C	BAGE	Riverside	3	2	4	4	—	—	105.0	0.9	—	10.8	—
MD	2408C	BAGE	Riverside	4	2	4	4	—	—	498.8	0.9	—	43.0	—
MD	2409C	BAGE	Riverside	5	2	4	4	—	—	339.4	0.9	—	28.3	—
MD	2410C	BAGE	Westport	3	1	4	4	—	—	278.6	0.9	—	26.6	—
MD	2411C	BAGE	Westport	4	1	4	4	—	—	226.4	0.9	—	18.7	—
MD	2412C	BAGE	Gould Street	3	1	4	4	—	—	770.5	1.0	—	44.5	—
PA	4201C	PHEC	Barbadoes	3	3	4	4	—	—	—	—	—	—	Not in Service 1978
PA	4202C	PHEC	Barbadoes	4	3	4	4	—	—	—	—	—	—	Not in Service 1978
PA	4203C	PHEC	Chester	5	4	4	4	—	—	623.0	0.3	—	22.4	C.F.F. Units 5&6*
PA	4204C	PHEC	Chester	6	4	4	4	—	—	*	0.3	—	—	—
PA	4205C	PHEC	Cromby	2	4	4	4	—	—	1,872.0	0.4	—	68.9	See footnote 3
PA	4206C	PHEC	Delaware	7	3	4	4	—	—	1,182.0	0.3	—	62.0	—

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1 - Does not meet primary standards 2 - Does not meet secondary standards 3 - Can not be classified 4 - Better than national standards

Table C.1 (Continued)

Attainment and Fuel Data for Coal-Designed Utility Boilers, Currently Firing Oil

Federal Region III (concluded)

State	I.D.	Company	Plant	Unit	Attainment			Fuel Consumption					Capacity Factor	Comments
					TSP	SO ₂	NO ₂	Coal 1,000 Tons	%S	Oil 1,000 BBL	%S	Gas 1,000 MCF		
PA	4207C	PHEC	Delaware	8	3	4	4	—	—	1,100.0	0.3	—	59.71	—
PA	4208C	PHEC	Richmond	9	3	4	4	—	—	782.0	0.3	—	—	—
PA	4209C	PHEC	Schuylkill	1	3	4	4	—	—	1,372.0	0.3	—	53.8	See footnote 4
PA	4210C	PHEC	Schuylkill	3	3	4	4	—	—	58.0	0.3	—	48.9	—
PA	4211C	PHEC	Southwark	1	3	4	4	—	—	637.0	0.3	—	17.3	—
PA	4212C	PHEC	Southwark	2	3	4	4	—	—	278.0	0.3	—	7.0	—
PA	4213C	WEPP	Mitchell	1	1	1	4	—	—	N/A	—	—	—	—
PA	4214C	WEPP	Mitchell	2	1	1	4	—	—	N/A	—	—	—	—
PA	4215C	WEPP	Springdale	7	1	1	4	—	—	N/A	—	—	—	—
PA	4216C	WEPP	Springdale	8	1	1	4	—	—	N/A	—	—	—	—
VA	5101C	VIEP	Chesterfield	1	4	4	4	—	—	408.7	2.3	—	30.7	—
VA	5102C	VIEP	Chesterfield	2	4	4	4	—	—	567.0	2.3	—	36.2	—
VA	5103C	VIEP	Chesterfield	3	4	4	4	—	—	675.2	2.3	—	41.7	—
VA	5104C	VIEP	Chesterfield	4	4	4	4	—	—	1,232.5	2.3	—	50.1	—
VA	5105C	VIEP	Portsmouth	1	3	4	4	—	—	517.7	2.3	—	33.3	—
VA	5106C	VIEP	Portsmouth	2	3	4	4	—	—	810.9	2.3	—	50.3	—
VA	5107C	VIEP	Portsmouth	3	3	4	4	—	—	1,675.2	2.3	—	72.8	—
VA	5108C	VIEP	Portsmouth	4	3	4	4	—	—	1,006.6	2.3	—	29.0	—
VA	5109C	VIEP	Possum Point	1	3	4	4	—	—	427.4	1.5	—	30.2	—
VA	5110C	VIEP	Possum Point	2	3	4	4	—	—	526.7	1.5	—	41.5	—
VA	5111C	VIEP	Possum Point	3	3	4	4	—	—	811.8	1.5	—	52.5	—
VA	5112C	VIEP	Possum Point	4	3	4	4	—	—	1,935.9	1.5	—	57.6	—
VA	5113C	VIEP	Yorktown	1	4	4	4	—	—	1,112.9	1.6	0.3	52.8	—
VA	5114C	VIEP	Yorktown	2	4	4	4	—	—	1,295.4	1.6	0.3	54.7	—

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1 - Does not meet primary standards

2 - Does not meet secondary standards

3 - Can not be classified

4 - Better than national standards

Table C.1 (Continued)
Attainment and Fuel Data for Coal-Designed Utility Boilers, Currently Firing Oil

Federal Region IV														
State	I.D.	Company	Plant	Unit	Attainment			Fuel Consumption					Capacity Factor	Comments
					TSP	SO ₂	NO ₂	Coal 1,000 Tons	%S	Oil 1,000 BBL	%S	Gas 1,000 MCF		
FL	1201C	TAEC	Gannon, F.J.	1	3	4	4	1,092	1.17	3,515.7	0.9	—	N/A	C.F.F. All Units*
FL	1202C	TAEC	Gannon, F.J.	2	3	4	4	*	1.17	*	0.9	—	N/A	—
FL	1203C	TAEC	Gannon, F.J.	3	3	4	4	*	1.17	*	0.9	—	N/A	—
FL	1204C	TAEC	Gannon, F.J.	4	3	4	4	—	1.17	*	0.9	—	N/A	—
GA	1301C	GEPC	Atkinson	1	4	4	4	—	—	6.3	0.23	397.7	50.7	—
GA	1302C	GEPC	Atkinson	2	4	4	4	—	—	191.6	0.23	711.1	55.9	—
GA	1303C	GEPC	Atkinson	3	4	4	4	—	—	198.8	0.23	1,082.3	56.3	—
GA	1304C	GEPC	Atkinson	4	4	4	4	—	—	252.5	0.23	965.5	50.2	—
GA	1305C	GEPC	McManus	1	4	4	4	—	—	338.0	1.0	—	54.0	—
GA	1306C	GEPC	McManus	2	4	4	4	—	—	505.0	1.0	—	45.5	—
GA	1307C	SAEP	Port Wentworth	1	4	4	4	—	—	447.9	2.4	360.3	73.3	1977
GA	1308C	SAEP	Port Wentworth	2	4	4	4	—	—	396.6	2.4	149.4	56.7	1977
GA	1309C	SAEP	Port Wentworth	3	4	4	4	—	—	1,083.2	2.4	129.6	77.4	1977
GA	1310C	SAEP	Port Wentworth	4	4	4	4	—	—	1,179.3	2.4	16.1	65.7	1977
MS	7801C	MIPO	Andrus	1	4	4	4	—	—	6,986.0	2.5	—	70.9	—
SC	4501C	SOCA	Jefferies	1	4	4	4	—	—	35.8	2.5	—	4.0	—
SC	4502C	SOCA	Jefferies	2	4	4	4	—	—	32.2	2.5	—	3.6	—
Federal Region V														
IL	1701C	COEC	Ridgeland	1	1	4	4	—	—	973.5	0.9	239.8	49.2	C.F.F. Units 1&2*
IL	1702C	COEC	Ridgeland	2	1	4	4	—	—	*	0.9	*	39.4	—
IL	1703C	COEC	Ridgeland	3	1	4	4	—	—	1,043.7	0.9	252.0	49.0	C.F.F. Units 3&4*
IL	1704C	COEC	Ridgeland	4	1	4	4	—	—	*	0.9	*	37.4	—
IL	1705C	ILPC	Wood River	1	1	4	4	—	—	393.1	0.25	—	4.6	C.F.F. Units 1,2,3*
IL	1706C	ILPC	Wood River	2	1	4	4	—	—	*	0.25	—	4.6	—
IL	1707C	ILPC	Wood River	3	1	4	4	—	—	*	0.25	—	3.9	—

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1 - Does not meet primary standards 2 - Does not meet secondary standards 3 - Can not be classified 4 - Better than national standards

Table C.1 (Continued)

Attainment and Fuel Data for Coal-Designed Utility Boilers, Currently Firing Oil

Federal Region V (continued)														
State	I.D.	Company	Plant	Unit	Attainment			Fuel Consumption					Capacity Factor	Comments
					TSP	SO ₂	NO ₂	Coal 1,000 Tons	%S	Oil 1,000 BBL	%S	Gas 1,000 MCF		
IL	1708C	UNEC	Venice #2	3	1	4	4	—	—	62.7	0.29	560.5	8.8	1977
IL	1709C	UNEC	Venice #2	4	1	4	4	—	—	48.2	0.29	540.0	6.8	1977
IL	1710C	UNEC	Venice #2	5	1	4	4	—	—	49.6	0.29	548.1	7.0	1977
IL	1711C	UNEC	Venice #2	6	1	4	4	—	—	41.7	0.29	578.5	5.9	1977
MI	2601C	COPR	Morrow BE	3	4	4	4	—	—	182.2	1.0	—	16.0	—
MI	2602C	COPR	Morrow BE	4	4	4	4	—	—	202.0	1.0	—	16.0	—
MI	2603C	COPR	Weadock JC	3	4	4	4	—	—	146.5	0.7	—	11.0	—
MI	2604C	COPR	Weadock JC	4	4	4	4	—	—	213.3	0.7	—	18.0	—
MI	2605C	COPR	Weadock JC	5	4	4	4	—	—	347.3	0.7	—	25.0	—
MI	2606C	COPR	Weadock, JC	6	4	4	4	—	—	276.4	0.7	—	21.0	—
MI	2607C	DETR	Mistersky	6	1	4	4	—	—	503.3	0.95	—	67.3	—
MI	2608C	DEEC	Conners Creek	12	1	4	4	—	—	164.4	0.3	924.0	5.8	C.F.F. for 7 Units*
MI	2609C	DEEC	Conners Creek	13	1	4	4	—	—	*	0.3	*	*	—
MI	2610C	DEEC	Conners Creek	14	1	4	4	—	—	*	0.3	*	*	—
MI	2611C	DEEC	Delray	11	1	4	4	—	—	1,161.0	1.0	5,430.0	39.1	C.F.F. All Units*
MI	2612C	DEEC	Delray	12	1	4	4	—	—	*	1.0	*	22.6	—
MI	2613C	DEEC	Delray	13	1	4	4	—	—	*	1.0	*	24.2	—
MI	2614C	DEEC	Delray	14	1	4	4	—	—	*	1.0	*	24.6	—
MI	2615C	DEEC	Delray	15	1	4	4	—	—	*	1.0	*	17.1	—
MI	2616C	DEEC	Delray	16	1	4	4	—	—	*	1.0	*	14.7	—
MI	2617C	DEEC	River Rouge	1	1	4	4	—	—	2,177.0	0.9	4,950.0	74.1	—
MI	2618C	DEEC	River Rouge	3	1	4	4	278.0	0.9	664.0	0.9	2,579.0	42.9	—
MI	2619C	DEEC	St. Clair	5	2	4	4	—	—	1,757.0	1.1	41.0	50.2	—
MN	2701C	INPD	Fox Lake	3	4	4	4	70.7	0.65	303.4	1.6	50.6	45.6	—
OH	3901C	CIGE	Miami Fort	3	2	1	4	—	—	237.8	0.22	—	13.0	—
OH	3902C	CIGE	Miami Fort	4	2	1	4	—	—	213.7	0.22	—	13.0	—

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1 - Does not meet primary standards 2 - Does not meet secondary standards 3 - Can not be classified 4 - Better than national standards

Table C.1 (Concluded)

Attainment and Fuel Data for Coal-Designed Utility Boilers, Currently Firing Oil

Federal Region V (concluded)														
State	I.D.	Company	Plant	Unit	Attainment			Fuel Consumption					Capacity Factor	Comments
					TSP	SO ₂	NO ₂	Coal 1,000 Tons	%S	Oil 1,000 BBL	%S	Gas 1,000 MCF		
OH	3903C	CLEI	Ashtabula	B1	1	4	4	—	—	63.1	1.51	—	7.2	—
OH	3904C	CLEI	Ashtabula	B2	1	4	4	—	—	54.6	1.51	—	5.8	—
OH	3905C	CLEI	Ashtabula	B3	1	4	4	—	—	60.3	1.51	—	6.5	—
OH	3906C	CLEI	Ashtabula	B4	1	4	4	—	—	59.2	1.51	—	6.2	—
OH	3907C	CLEI	Avon Lakes	5	4	1	4	—	—	25.7	0.38	—	3.6	—
OH	3908C	CLEI	Lake Shore	14	1	1	4	—	—	245.5	1.26	—	20.7	—
OH	3909C	CLEI	Lake Shore	15	1	1	4	—	—	238.3	1.26	—	19.8	—
OH	3910C	CLEI	Lake Shore	16	1	1	4	—	—	389.8	1.26	—	27.0	—
OH	3911C	CLEI	Lake Shore	17	1	1	4	—	—	408.6	1.26	—	28.4	—
WI	5501C	WIEP	Lake Side	9	4	4	4	—	—	1,036.7	0.2	730.1	32.0	C.F.F. for 20 units*
WI	5502C	WIEP	Lake Side	11	4	4	4	—	—	*	0.2	*	33.0	—
Federal Region VI														
AR	0501C	ARPL	Moses, Ham	1	4	4	4	—	—	405.5	0.97	—	38.4	1977
AR	0502C	ARPL	Moses, Ham	2	4	4	4	—	—	411.8	0.97	—	37.3	1977
AR	0503C	ARPL	Ritchie, R.E.	1	4	4	4	—	—	2,395.4	0.97	141.2	54.8	1977
AR	3504C	ARPL	Ritchie, R.E.	2	4	4	4	—	—	3,401.9	0.97	806.6	52.8	1977
LA	2201C	LOPI	Waterford	2	4	4	4	—	—	3,006.0	1.0	165	51.6	1977
Federal Region VIII														
CO	0801C	PSCO	Zuni	2	1	4	1	—	—	148.7	0.93	3,051.1	69.3	C.F.F. for Units 1&2

1 - Does not meet primary standards 2 - Does not meet secondary standards 3 - Can not be classified 4 - Better than national standards

Table C.2

Attainment and Fuel Data for Oil-Designed Utility Boilers, Currently Firing Oil

Federal Region I												
State	I.D.	Company	Plant	Unit	Attainment			Fuel Consumption		Gas 1,000 MCF	Capacity Factor	Comments
					TSP	SO ₂	NO ₂	Oil 1,000 BBL	%S			
CT	0901	COLP	Montville	6	2	4	4	2.60	0.43	—	N/A	—
CT	0902	HAEL	Middletown	4	1	4	4	1,207.1	0.47	—	17.8	—
CT	0903	UNIC	New Haven Har.	1	1	4	4	3,383.0	0.3	—	54.7	—
ME	2301	CEMP	Wyman, W.F.	3	4	4	4	905.5	1.81	—	59.0	—
ME	2302	CEMP	Wyman, W.F.	4	4	4	4	192.5	1.81	—	N/A	—
MA	2501	BOEC	Mystic	7	3	4	4	4,915.7	0.95	—	60.7	—
MA	2502	CACO	Canal	2	3	4	4	5,163.3	1.0	—	66.1	1977
MA	2503	NEEP	Brayton Point	4	3	4	4	3,049.9	1.9	—	46.3	—
MA	2504	NEEP	Salem Harbor	4	3	4	4	3,287.8	1.4	—	49.0	—
NH	3301	PSNH	Newington	1	4	4	4	2,854.4	1.74	—	45.8	—
Federal Region II												
NJ	3401	PSEG	Linden	1	2	4	4	2,760.1	0.28	—	N/A	—
NJ	3402	PSEG	Linden	2	2	4	4	1,642.8	0.28	—	42.3	—
NJ	3403	PSEG	Linden	4	2	4	4	1,153.1	0.28	—	34.2	—
NJ	3404	PSEG	Sewaren	5	4	4	4	1,622.2	0.4	—	36.3	—
NJ	3405	ATCE	England, B.L.	3	4	4	4	1,599.8	1.9	—	62.0	—
NY	3601	CEHG	Roseton	1	4	4	4	5,192.0	1.94	—	65.8	—
NY	3602	CEHG	Roseton	2	4	4	4	5,173.0	1.94	—	65.5	—
NY	3603	COEN	Ravenswood	1	3	3	4	2,751.7	0.26	53.5	51.9	—
NY	3604	COEN	Ravenswood	2	3	3	4	2,387.2	0.26	59.3	45.7	—
NY	3605	LOIL	Northport	1	4	4	4	3,273.0	1.9	—	62.0	—
NY	3606	LOIL	Northport	2	4	4	4	2,630.0	1.9	—	50.0	—
NY	3607	LOIL	Northport	3	4	4	4	2,501.0	1.9	—	48.0	—
NY	3608	LOIL	Northport	4	4	4	4	3,396.0	1.9	—	61.0	—
NY	3609	NIMP	Oswego	5	4	4	4	4,345.6	2.65	—	48.9	—

(continued on next page)

1 - Does not meet primary standards

2 - Does not meet secondary standards

3 - Can not be classified

4 - Better than national standards

Table C.2 (Continued)
Attainment and Fuel Data for Oil-Designed Utility Boilers, Currently Firing Oil

Federal Region II (concluded)

State	I.D.	Company	Plant	Unit	Attainment			Fuel Consumption			Capacity Factor	Comments
					TSP	SO ₂	NO ₂	Oil 1,000 BBL	%S	Gas 1,000 MCF		
NY	3610	ORRU	Bowline Point	1	4	4	4	4,040.2	0.3	24.2	71.3	—
NY	3611	ORRU	Bowline Point	2	4	4	4	3,930.4	0.3	1.0	70.0	—
NY	3612	POAS	Astoria	6	3	3	4	4,339.0	0.2	0.6	N/A	—

Federal Region III

DE	1001	DEPL	Edge Moor	5	4	4	4	1,360.8	0.962	—	59.5	—
DE	1002	DODE	McKee Runn	3	4	4	4	745.0	1.7	208.0	81.4	—
DC	1101	POEP	Benning	13	2	4	4	126.4	0.82	—	11.7	—
DC	1102	POEP	Benning	15	2	4	4	1,267.0	0.82	—	27.9	—
DC	1103	POEP	Benning	16	2	4	4	1,182.3	0.82	—	25.6	—
MD	2401	BAGE	Wagner	4	1	4	4	2,349.6	1.0	—	34.4	—
MD	2402	POEP	Chalk Point	3	4	4	4	3,788.7	1.98	—	41.5	—
MD	2403	DEPM	Vienna	8	4	4	4	743.7	1.78	—	28.3	—
PA	4201	PEPL	Martins Creek	3	1	4	4	5,296.6	0.80	—	44.2	—
PA	4202	PEPL	Martins Creek	4	1	4	4	5,486.8	0.90	—	45.2	—
PA	4203	PHEC	Eddystone	3	4	3	4	1,627.0	0.40	—	25.3	—
PA	4204	PHEC	Eddystone	4	4	3	4	1,893.0	0.40	—	29.8	—
VA	5101	VIEP	Possum Point	5	3	4	4	5,993.8	1.5	—	49.7	—
VA	5102	VIEP	Yorktown	3	4	4	4	7,018.9	1.6	—	60.9	—

Federal Region IV

FL	1201	FLPL	Cape Canaveral	1	4	4	4	1,571.0	1.93	9,905.0	58.4	—
FL	1202	FLPL	Cape Canaveral	2	4	4	4	1,767.0	1.93	11,672.0	71.5	—
FL	1203	FLPL	Cutler	4	4	4	4	—	—	—	—	Cold Stand by Status
FL	1204	FLPL	Cutler	5	4	4	4	—	—	—	—	Cold Stand by Status
FL	1205	FLPL	Cutler	6	4	4	4	—	—	—	—	Cold Stand by Status

(continued on next page)

1 - Does not meet primary standards 2 - Does not meet secondary standards 3 - Can not be classified 4 - Better than national standards

Table C.2 (Continued)

Attainment and Fuel Data for Oil-Designed Utility Boilers, Currently Firing Oil

Federal Region IV (continued)

State	I.D.	Company	Plant	Unit	Attainment			Fuel Consumption			Capacity Factor	Comments
					TSP	SO ₂	NO ₂	Oil 1,000 BBL	%S	Gas 1,000 MCF		
FL	1206	FLPL	Fort Meyers	1	4	4	4	855.4	1.38	—	42.0	—
FL	1207	FLPL	Fort Meyers	2	4	4	4	2,932.2	1.38	—	59.3	—
FL	1208	FLPL	Lauderdale	4	4	4	4	499.6	0.95	1,937.0	35.2	—
FL	1209	FLPL	Lauderdale	5	4	4	4	496.4	0.95	4,045.7	54.0	—
FL	1210	FLPL	Port Everglades	1	4	4	4	1,348.0	0.9	3,237.0	66.7	—
FL	1211	FLPL	Port Everglades	2	4	4	4	1,357.0	0.9	2,975.0	60.2	—
FL	1212	FLPL	Port Everglades	3	4	4	4	1,654.0	0.9	6,472.0	46.5	—
FL	1213	FLPL	Port Everglades	4	4	4	4	2,252.0	0.9	7,805.0	66.0	—
FL	1214	FLPL	Palatka	2	4	4	4	—	—	—	—	Cold Stand by Status
FL	1215	FLPL	Riviera	2	4	4	4	—	—	—	—	Cold Stand by Status
FL	1216	FLPL	Riviera	3	4	4	4	823.0	0.93	10,828.0	63.6	—
FL	1217	FLPL	Riviera	4	4	4	4	756.0	0.93	7,781.0	50.1	—
FL	1218	FLPL	Sanford	3	4	4	4	524.0	1.5	2,593.0	42.4	—
FL	1219	FLPL	Sanford	4	4	4	4	1,936.0	1.5	—	35.7	—
FL	1220	FLPL	Sanford	5	4	4	4	2,940.0	1.5	—	55.0	—
FL	1221	FLPL	Turkey Point	1	4	4	4	2,051.0	0.9	8,223.0	64.8	—
FL	1222	FLPL	Turkey Point	2	4	4	4	2,290.0	0.9	6,725.0	63.8	—
FL	1223	FLPL	Manatee	1	4	4	4	8,925.0	0.91	—	45.2	—
FL	1224	FLPL	Manatee	2	4	4	4	3,847.0	0.91	—	36.1	—
FL	1225	FLPC	Turner, G.E.	3	4	4	4	167.1	2.3	3,599.7	66.9	—
FL	1226	FLPC	Turner, G.E.	4	4	4	4	221.1	2.3	2,905.8	61.9	—
FL	1227	FLPC	Bartow, P.L.	1	4	1/2	4	1,062.6	2.3	—	62.2	—
FL	1228	FLPC	Bartow, P.L.	2	4	1/2	4	342.4	2.3	5,536.9	72.5	—
FL	1229	FLPC	Bartow, P.L.	3	4	1/2	4	1,333.0	2.2	2,396.3	60.3	—
FL	1230	FLPC	Suwanee Riv.	3	4	4	4	594.4	2.4	76.8	46.8	—
FL	1231	FLPC	Anclote	1	4	4	4	4,928.9	2.3	—	72.5	1977

(continued on next page)

1 - Does not meet primary standards

2 - Does not meet secondary standards

3 - Can not be classified

4 - Better than national standards

Table C.2 (Continued)

Attainment and Fuel Data for Oil-Designed Utility Boilers, Currently Firing Oil

Federal Region IV (concluded)

State	I.D.	Company	Plant	Unit	Attainment			Fuel Consumption			Capacity Factor	Comments
					TSP	SO ₂	NO ₂	Oil 1,000 BBL	%S	Gas 1,000 MCF		
FL	1232	FLPC	Anclote	2	4	4	4	—	—	—	—	New Plant
FL	1233	FOPL	King	8	4	4	4	24.6	2.5	1,472.4	29.1	—
FL	1234	GAMW	Deerhaven	1	4	4	4	494.7	2.20	2,546.6	77.1	—
FL	1235	JACO	Kennedy, J.D.	8	4	4	4	388.1	1.31	—	N/A	—
FL	1236	JACO	Kennedy, J.D.	9	4	4	4	450.9	1.31	—	N/A	—
FL	1237	JACO	Kennedy, J.D.	10	4	4	4	1,222.6	1.31	—	N/A	—
FL	1238	JACO	Northside	1	4	4	4	1,364.9	1.91	—	N/A	—
FL	1239	JACO	Northside	2	4	4	4	1,694.4	1.91	—	N/A	—
FL	1240	JACO	Northside	3	4	4	4	1,525.0	1.91	—	N/A	—
FL	1241	JACO	Southside	3	4	4	4	497.4	1.33	—	N/A	—
FL	1242	JACO	Southside	4	4	4	4	102.7	1.33	—	N/A	—
FL	1243	JACO	Southside	5	4	4	4	1,435.6	1.33	—	N/A	—
FL	1244	LALW	Larson Memorial	7	4	4	4	26.1	0.7	870.4	N/A	C.F.F.
FL	1245	LALW	McIntosh, C.D.	1	4	4	4	374.5	2.35	3,091.0	N/A	—
FL	1246	LALW	McIntosh, C.D.	2	4	4	4	859.4	0.69	—	N/A	—
FL	1247	ORLA	Indian River	1	4	4	4	509.6	1.67	666.3	46.5	—
FL	1248	ORLA	Indian River	2	4	4	4	1,174.0	1.67	1,207.4	47.7	—
FL	1249	ORLA	Indian River	3	4	4	4	1,585.4	1.67	6,058.9	56.3	—
FL	1250	TALL	Hopkins, Arvah	1	4	4	4	407.0	1.68	1,240.4	59.0	—
FL	1251	TALL	Hopkins, Arvah	2	4	4	4	930.2	1.68	3,958.8	44.0	—
FL	1252	TALL	Purdon, S.O.	7	4	4	4	253.8	1.96	1,433.3	56.0	—
FL	1257	TAEC	Hookers Point	5	3	3	4	420.8	0.95	—	N/A	C.F.F.
FL	1258	VEBM	Municipal Point	4	4	4	4	113.0	2.0	1,388	3.0	—
GA	1301	SAEP	Effingham Station	1	4	4	4	—	—	—	—	New Plant
MS	2801	MIPR	Daniel, Victor J.	1	4	4	4	1,934.0	0.63	40.4	24.6	821 Tons Coal, 0.5%S
SC	4501	SOCG	Williams	1	4	4	4	4,273.9	2.0	—	57.3	—

(continued on next page)

1 - Does not meet primary standards 2 - Does not meet secondary standards 3 - Can not be classified 4 - Better than national standards

Table C.2 (Continued)

Attainment and Fuel Data for Oil-Designed Utility Boilers, Currently Firing Oil

Federal Region V												
State	I.D.	Company	Plant	Unit	Attainment			Fuel Consumption			Capacity Factor	Comments
					TSP	SO ₂	NO ₂	Oil 1,000 BBL	%S	Gas 1,000 MCF		
IL	1701	CEIP	Meredosia	4	4	4	4	604.6	0.4	—	28.1	—
IL	1702	COEC	Collins	1	3	4	4	1,286.0	0.57	—	20.9	—
IL	1703	COEC	Collins	2	3	4	4	1,886.7	0.57	—	24.8	—
IL	1704	COEC	Collins	3	3	4	4	2,138.0	0.57	—	28.7	—
IL	1705	COEC	Collins	4	3	4	4	—	—	—	—	Not in Operation-1978
IL	1706	COEC	Collins	5	3	4	4	—	—	—	—	Not in Operation-1978
IN	1801	INME	Twin Branch	4	1	4	4	398.2	0.41	—	N/A	—
IN	1802	INME	Twin Branch	5	1	4	4	911.9	0.41	—	N/A	—
MI	2601	COPR	Karn, DE	3	4	4	4	4,834.0	N/A	—	50.0	—
MI	2602	COPR	Karn, DE	4	4	4	4	4,274.4	N/A	—	32.0	—
MI	2603	DEEC	Enrico, Fermi	1	2	4	4	142.0	0.3	—	3.6	—
Federal Region VI												
AR	0501	ARPL	Lynch, Cecil	2	4	4	4	250.2	0.2	22.1	19.92	—
AR	0502	ARPL	Lynch, Cecil	3	4	4	4	437.8	0.2	6.67	18.0	—
AR	0503	ARPL	Lake Catherine	3	4	4	4	781.7	0.95	4.7	49.4	—
AR	0504	ARPL	Lake Catherine	4	4	4	4	3,206.8	0.95	243.1	41.5	—
LA	2201	GUSU	Willow Glen	5	4	4	4	7,116.0	0.7	37,435.0	40.0	—
NM	3501	ELPE	Rio Grande	6	4	4	4	34.3	0.3	2,457.7	53.5	—
NM	3502	ELPE	Rio Grande	7	4	4	4	32.6	0.3	2,197.4	55.4	—
NM	3503	ELPE	Rio Grande	8	4	4	4	20.3	0.3	5,816.1	44.1	—
TX	4801	HOLP	Cedar Bayou	3	4	4	4	17.2	0.8	45,807.8	76.5	—
TX	4802	HOLP	Greens Bayou	5	1	4	4	46.9	0.7	19,325.3	49.2	—
TX	4803	SOEP	Lone Star	1	4	4	4	—	—	—	—	Not in Operation-1978
Federal Region VIII												
SD	4601	NOSW	Pathfinder	1	4	4	4	125.5	1.5	5.8	9.9	—

(continued on next page)

1 - Does not meet primary standards

2 - Does not meet secondary standards

3 - Can not be classified

4 - Better than national standards

Table C.2 (Continued)

Attainment and Fuel Data for Oil-Designed Utility Boilers, Currently Firing Oil

Federal Region IX

State	I.D.	Company	Plant	Unit	Attainment			Fuel Consumption			Capacity Factor	Comments
					TSP	SO ₂	NO ₂	Oil 1,000 BBL	%S	Gas 1,000 MCF		
AZ	0401	ARPS	Ocotillo	1	1	4	4	252.0	0.67	6,170.2	37.3	C.F.F. Units 1&2
AZ	0402	ARPS	Ocotillo	2	1	4	4	*	0.67	*	N/A	—
AZ	0403	ARPS	Phoenix	6	1	4	4	320.5	0.27	476.0	4.7	C.F.F. All Units
AZ	0404	ARPS	Saguaro	1	1	1	4	368.8	0.7	3,667.0	23.5	C.F.F. Units 1&2*
AZ	0405	ARPS	Saguaro	2	1	1	4	*	0.7	*	33.2	—
AZ	0406	ARPS	Yuma Axis	1	1	4	4	N/A	—	—	N/A	—
AZ	0407	SARV	Agua Fria	1	1	4	4	299.4	0.68	3,196.0	56.7	—
AZ	0408	SARV	Agua Fria	2	1	4	4	310.4	0.68	2,397.5	56.3	—
AZ	0409	SARV	Agua Fria	3	1	4	4	740.8	0.68	38,580.0	62.8	—
AZ	0410	SARV	Kyrene	2	1	4	4	40.2	0.42	780.8	28.7	—
AZ	0411	TUGE	De Moss Petrie	4	1	1	4	116.0	0.87	2,452.2	63.5	—
AZ	0412	TUGE	Irvington	1	1	1	4	215.0	0.87	2,960.3	60.3	—
AZ	0413	TUGE	Irvington	2	1	1	4	221.0	0.87	2,543.0	55.5	—
AZ	0414	TUGE	Irvington	3	1	1	4	298.4	0.87	704.3	49.2	—
AZ	0415	TUGE	Irvington	4	1	1	1	759.5	0.87	4,928.1	71.75	—
CA	0601	BRUB	Olive	2	1	1	1	434.0	0.23	1,313.1	N/A	C.F.F. All Units
CA	0602	GLPS	Grayson	4	1	1	1	181.2	0.34	1,305.3	N/A	C.F.F. Units 4&5*
CA	0603	GLPS	Grayson	5	1	1	1	*	0.34	*	N/A	—
CA	0604	IMID	El Centro	3	3	3	4	297.3	—	21.6	38.5	—
CA	0605	IMID	El Centro	4	3	3	4	823.0	1.44	213.4	74.5	—
CA	0606	LOAN	Harbor	1	1	4	4	14.0	0.23	26.0	1.5	—
CA	0607	LOAN	Harbor	2	1	4	4	19.0	0.23	115.0	2.7	—
CA	0608	LOAN	Harbor	3	1	4	4	160.0	0.23	216.0	11.9	—
CA	0609	LOAN	Harbor	4	1	4	4	155.0	0.23	247.0	12.1	—
CA	0610	LOAN	Harbor	5	1	4	4	137.0	0.23	345.0	12.4	—
CA	0611	LOAN	Haynes	1	1	4	1	1,611.0	0.19	2,069.0	62.0	—

(continued on next page)

1 - Does not meet primary standards

2 - Does not meet secondary standards

3 - Can not be classified

4 - Better than national standards

Table C.2 (Continued)

Attainment and Fuel Data for Oil-Designed Utility Boilers, Currently Firing Oil

Federal Region IX (continued)

State	I.D.	Company	Plant	Unit	Attainment			Fuel Consumption			Capacity Factor	Comments
					TSP	SO ₂	NO ₂	Oil 1,000 BBL	%S	Gas 1,000 MCF		
CA	0612	LOAN	Haynes	2	1	4	1	1,509.0	0.19	1,647.0	57.6	—
CA	0613	LOAN	Haynes	3	1	4	1	1,404.0	0.19	1,842.0	59.3	—
CA	0614	LOAN	Haynes	4	1	4	1	1,349.0	0.19	1,487.0	53.2	—
CA	0615	LOAN	Haynes	5	1	4	1	1,816.0	0.19	2,863.0	53.7	—
CA	0616	LOAN	Haynes	6	1	4	1	2,120.0	0.19	2,465.0	54.5	—
CA	0617	LOAN	Scattergood	1	1	4	1	854.0	0.20	1,389.0	43.6	—
CA	0618	LOAN	Scattergood	2	1	4	1	830.0	0.20	1,514.0	43.9	—
CA	0619	LOAN	Valley	1	1	3	1	264.0	0.21	711.0	23.0	—
CA	0620	LOAN	Valley	2	1	3	1	171.0	0.21	122.0	12.6	—
CA	0621	LOAN	Valley	3	1	3	1	207.0	0.21	268.0	10.9	—
CA	0622	LOAN	Valley	4	1	3	1	512.0	0.21	770.0	26.7	—
CA	0623	PAGE	Contra Costa	1	2	4	4	157.2	0.46	585.7	25.9	—
CA	0624	PAGE	Contra Costa	2	2	4	4	235.0	0.46	915.0	39.1	—
CA	0625	PAGE	Contra Costa	3	2	4	4	159.6	0.46	802.7	29.3	—
CA	0626	PAGE	Contra Costa	4	2	4	4	161.3	0.46	555.8	25.7	—
CA	0627	PAGE	Contra Costa	5	2	4	4	198.6	0.46	1,199.9	40.5	—
CA	0628	PAGE	Contra Costa	6	2	4	4	144.9	0.46	463.4	22.5	—
CA	0629	PAGE	Contra Costa	7	2	4	4	358.5	0.46	1,044.8	31.5	—
CA	0630	PAGE	Humbolt Bay	1	1	3	4	139.8	1.43	1,874.8	47.3	—
CA	0631	PAGE	Humbolt Bay	2	1	3	4	136.0	1.43	1,768.0	45.5	—
CA	0632	PAGE	Hunters Point	2	2	4	4	—	—	—	—	Out of Service
CA	0633	PAGE	Hunters Point	3	2	4	4	126.8	0.29	1,184.6	33.3	—
CA	0634	PAGE	Hunters Point	4	2	4	4	121.1	0.29	1,184.6	33.3	—
CA	0635	PAGE	Kern	1	1	1	4	121.9	1.0	173.9	17.5	—
CA	063C	PAGE	Kern	2	1	1	4	89.0	1.0	217.8	14.7	—
CA	0637	PAGE	Morro Bay	1	1	3	4	340.0	0.39	2,496.4	N/A	—

(continued on next page)

1 - Does not meet primary standards

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Table C.2 (Continued)
Attainment and Fuel Data for Oil-Designed Utility Boilers, Currently Firing Oil

Federal Region IX (continued)

State	I.D.	Company	Plant	Unit	Attainment			Fuel Consumption			Capacity Factor	Comments
					TSP	SO ₂	NO ₂	Oil 1,000 BBL	%S	Gas 1,000 MCF		
CA	0638	PAGE	Morro Bay	2	1	3	4	571.7	0.39	3,293.9	47.8	—
CA	0639	PAGE	Morro Bay	3	1	3	4	1,296.6	0.39	7,783.0	59.0	—
CA	0640	PAGE	Morro Bay	4	1	3	4	1,324.2	0.39	9,162.2	66.5	—
CA	0641	PAGE	Moss Landing	1	1	3	4	646.3	0.38	3,754.9	16.9	C.F.F. Units 1-6*
CA	0642	PAGE	Moss Landing	2	1	3	4	*	0.38	*	25.4	—
CA	0643	PAGE	Moss Landing	3	1	3	4	*	0.38	*	21.4	—
CA	0644	PAGE	Moss Landing	4	1	3	4	*	0.38	*	17.9	—
CA	0645	PAGE	Moss Landing	5	1	3	4	*	0.38	*	22.6	—
CA	0646	PAGE	Moss Landing	6	1	3	4	*	0.38	*	22.1	—
CA	0647	PAGE	Moss Landing	7	1	3	4	86.4	0.38	981.8	13.3	—
CA	0648	PAGE	Pittsburgh	1	2	4	4	786.7	0.46	2,179.2	48.2	—
CA	0649	PAGE	Pittsburgh	2	2	4	4	831.9	0.46	2,102.3	47.3	—
CA	0650	PAGE	Pittsburgh	3	2	4	4	102.9	0.46	558.1	25.6	—
CA	0651	PAGE	Pittsburgh	4	2	4	4	808.5	0.46	2,166.1	47.4	—
CA	0652	PAGE	Pittsburgh	5	2	4	4	1,469.1	0.46	2,059.2	39.8	—
CA	0653	PAGE	Pittsburgh	6	2	4	4	2,003.0	0.46	3,824.7	57.4	—
CA	0654	PAGE	Pittsburgh	7	2	4	4	3,591.6	0.46	7,024.3	47.7	—
CA	0655	PAGE	Potrero	1	2	4	4	76.6	0.34	543.1	16.0	—
CA	0656	PAGE	Potrero	2	2	4	4	82.5	0.34	599.8	54.4	—
CA	0657	PAGE	Potrero	3	2	4	4	82.8	0.34	580.7	18.0	—
CA	0658	PASA	Broadway	B2	1	3	1	72.6	0.25	320.7	15.95	—
CA	0659	PASA	Broadway	B3	1	3	1	336.6	0.25	1,264.6	54.38	—
CA	0660	SADG	Encina	1	1	4	1	1,175.0	0.34	345.0	83.0	1977
CA	0661	SADG	Encina	2	1	4	1	1,087.0	0.34	19.0	92.0	1977
CA	0662	SADG	Encina	3	1	4	1	1,087.0	0.34	146.0	93.0	1977
CA	0663	SADG	Encina	4	1	4	1	3,315.0	0.34	437.0	85.0	1977, C.F.F. Units 4&5*

(continued on next page)

1 - Does not meet primary standards 2 - Does not meet secondary standards 3 - Can not be classified 4 - Better than national standards

Table C.2 (Continued)

Attainment and Fuel Data for Oil-Designed Utility Boilers, Currently Firing Oil

Federal Region IX (continued)

State	I.D.	Company	Plant	Unit	Attainment			Fuel Consumption			Capacity Factor	Comments
					TSP	SO ₂	NO ₂	Oil 1,000 BBL	%S	Gas 1,000 MCF		
CA	0664	SADG	Encina	5	1	4	1	*	0.34	*	*	1977
CA	0665	SADG	Silver Gate	2	1	4	1	33.8	0.28	121.3	28.0	1977
CA	0666	SADG	Silver Gate	3	1	4	1	82.9	0.28	393.5	59.0	1977
CA	0667	SADG	Silver Gate	4	1	4	1	82.9	0.28	393.5	59.0	1977
CA	0668	SADG	South Bay	1	1	4	1	1,189.0	0.34	3,679.0	99.5	1977
CA	0669	SADG	South Bay	2	1	4	1	1,043.0	0.34	3,726.0	94.3	1977
CA	0670	SADG	South Bay	3	1	4	1	1,092.0	0.34	2,637.0	72.4	1977, C.F.F. Units 3&4*
CA	0671	SADG	South Bay	4	1	4	1	*	0.34	*	70.0	1977
CA	0672	SOCE	Alamitos	1	1	4	1	5,226.0	0.22	13,335.0	38.3	C.F.F. Units 1-4*
CA	0673	SOCE	Alamitos	2	1	4	1	*	0.22	*	33.6	—
CA	0674	SOCE	Alamitos	3	1	4	1	*	0.22	*	54.5	—
CA	0675	SOCE	Alamitos	4	1	4	1	*	0.22	*	55.1	—
CA	0676	SOCE	Alamitos	5	1	4	1	5,421.0	0.22	8,723.0	46.1	C.F.F. Units 5&6*
CA	0677	SOCE	Alamitos	6	1	4	1	*	0.22	*	56.2	C.F.F. Units 1&2*
CA	0678	SOCE	Cool Water	1	1	3	4	325.1	N/A	6,681.4	64.2	—
CA	0679	SOCE	Cool Water	2	1	3	4	*	N/A	*	75.5	—
CA	0680	SOCE	El Segundo	1	1	4	1	4,998.0	0.24	12,093.4	51.9	C.F.F. Units 1-4*
CA	0681	SOCE	El Segundo	2	1	4	1	*	0.24	*	53.9	—
CA	0682	SOCE	El Segundo	3	1	4	1	*	0.24	*	53.9	—
CA	0683	SOCE	El Segundo	4	1	4	1	*	0.24	*	45.6	—
CA	0684	SOCE	Etiwanda	1	1	3	1	5,419.0	N/A	12,882.8	61.9	C.F.F. Units 1-4*
CA	0685	SOCE	Etiwanda	2	1	3	1	*	N/A	*	68.7	—
CA	0686	SOCE	Etiwanda	3	1	3	1	*	N/A	*	53.6	—
CA	0687	SOCE	Etiwanda	4	1	3	1	*	N/A	*	54.9	—
CA	0688	SOCE	High Grove	3	1	3	1	92.5	0.28	365.5	3.9	C.F.F. Units 3&4*
CA	0689	SOCE	High Grove	4	1	3	1	*	—	*	11.2	—

(continued on next page)

1 - Does not meet primary standards

2 - Does not meet secondary standards

3 - Can not be classified

4 - Better than national standards

Table C.2 (Concluded)
Attainment and Fuel Data for Oil-Designed Utility Boilers, Currently Firing Oil

Federal Region IX (concluded)

State	I.D.	Company	Plant	Unit	Attainment			Fuel Consumption			Capacity Factor	Comments
					TSP	SO ₂	NO ₂	Oil 1,000 BBL	%S	Gas 1,000 MCF		
CA	0690	SOCE	Huntington Be.	1	1	4	1	4,213.0	0.19	13,442.0	36.2	C.F.F. Units 1-4 *
CA	0691	SOCE	Huntington Be.	2	1	4	1	*	0.19	*	43.3	—
CA	0692	SOCE	Huntington Be.	3	1	4	1	*	0.19	*	48.3	—
CA	0693	SOCE	Huntington Be.	4	1	4	1	*	0.19	*	49.4	—
CA	0694	SOCE	Long Beach	10	1	4	1	—	—	—	—	Burned Natural Gas
CA	0695	SOCE	Long Beach	11	1	4	1	—	—	—	—	Only in 1978
CA	0696	SOCE	Mandalay	1	1	4	4	1,723.0	0.234	8,953.0	49.5	C.F.F. Units 1&2 *
CA	0697	SOCE	Mandalay	2	1	4	4	*	0.234	*	61.2	—
CA	0698	SOCE	Ormond Beach	1	1	4	4	8,600.0	0.214	840.0	40.5	C.F.F. Units 1&2 *
CA	0699	SOCE	Ormond Beach	2	1	4	4	*	0.214	*	41.8	—
CA	06100	SOCE	Redondo Beach	1	1	4	1	70.3	0.2	1,308.8	N/A	C.F.F. Units 1-4 *
CA	06101	SOCE	Redondo Beach	2	1	4	1	*	0.2	*	N/A	—
CA	06102	SOCE	Redondo Beach	3	1	4	1	*	0.2	*	N/A	—
CA	06103	SOCE	Redondo Beach	4	1	4	1	*	0.2	*	42.1	—
CA	06104	SOCE	Redondo Beach	5	1	4	1	2,396.8	0.2	6,852.1	42.1	C.F.F. Units 5&6 *
CA	06105	SOCE	Redondo Beach	6	1	4	1	*	0.2	*	54.0	—
CA	06106	SOCE	Redondo Beach	7	1	4	1	4,493.0	0.2	14,999.2	57.1	C.F.F. Units 7&8 *
CA	06107	SOCE	Redondo Beach	8	1	4	1	*	0.2	*	50.4	—
CA	06108	SOCE	San Bernardino	1	1	3	1	706.1	0.21	2,725.8	69.1	C.F.F. Units 1&2 *
CA	06109	SOCE	San Bernardino	2	1	3	1	*	0.21	*	58.0	—

1 - Does not meet primary standards 2 - Does not meet secondary standards 3 - Can not be classified 4 - Better than national standards

Footnotes

1. Consumption figures for Devon units 7 and 8 are for fuel oil No. 6. Unit 7 also burned 8.14 thousand barrels of No. 2 oil. Unit 8 burned 6.69 thousand barrels of No. 2 oil. (Both had an average sulfur content of 0.11 % for No. 2 oil.)

2. Norwalk Harbor Unit 1 burned an additional 4.66 thousand barrels of No. 2 oil. Unit 2 burned 6.33 thousand barrels of No. 2 oil. (Average sulfur 0.11%).

3. All of the Philadelphia Electric Company plants are now in areas designated as "cannot be classified" or "better than national standards" for the pollutant SO₂. Redesignation for the following plants is in

progress. Each plant is followed by the expected new attainment configuration.

Plant	Expected Status
Delaware	1
Delaware	1
Richmond	1
Schuylkill	2
Southwark	2

Source: EPA Office of Air and Hazardous Emissions, Region III, Philadelphia, PA.

4. Consumption figures are for all units at the Richmond Plant.

Appendix D

Distribution of Oil-Fired Boiler Capacity by Utility

Table D.1 provides a comparison of oil-fired units for each utility against the total generating capacity of the utility. Percentage of oil-designed and coal-designed capacity relative to total utility capacity is

shown. Total utility capacities were taken from "Electrical World Directory of Electric Utilities: 1979-1980," (Electrical World, 1980).

Table D.1
Distribution of Oil-Fired Capacity Relative to Total Utility Capacity

Standard Federal Region	State	Utility Company	Coal Designed			Oil Designed			Total Utility Capacity ¹ (MW)
			Number of Units	Capacity (MW)	Percent of Total Utility Capacity	Number of Units	Capacity (MW)	Percent of Total Utility Capacity	
I	CT	COLP	7	741	23.8	1	383	12.3	3107
		HAEL	3	422	22.5	1	400	21.4	1873
		UNIL	3	662	46.8	1	465	32.8	1416
	ME	CEMP	—	—	—	2	426	39.9	1067
	MA	BOEL	5	1175	41.9	1	617	22.0	2806
		NEEP	6	1459	40.3	2	913	25.2	3620
		CACO	1	542	67.2	1	265 ²	32.8	807
		HOWP	1	136	75.1	—	—	—	181
		WEME	2	164	16.0	—	—	—	1024
		MOEL	2	194	52.4	—	—	—	370
	NH	PSNH	3	150	10.2	1	414	28.2	1468
	RI	NAEC	1	63	25.4	—	—	—	248
II	NJ	ATCE	—	—	—	1	163	10.8	1504
		DWOC	4	264	86.3	—	—	—	306
		PSEG	11	2140	21.4	4	1002	10.0	9993
		JECF	6	625	18.5	—	—	—	3375
	NY	CEHG	4	531	65.3	2	240 ³	29.5	813
		COEN	26	5252	49.5	2	800	7.5	10607
		LOIL	7	1090	28.4	4	1548	40.3	3842
		NIMP	8	776	16.3	1	902	18.9	4762
		ORRU	3	448	43.4	2	400 ⁴	38.8	1032
		POAS	—	—	—	1	826	12.3	6740
III	DE	DEPL	4	392	18.7	1	446	21.2	2099
		DODE	—	—	—	1	110	76.4	144
	DC	POEP	4	200	4.0	3	633	12.5	5068
	MD	BAGE	12	1233	25.5	1	414	8.5	4843
		POEP	—	—	—	1	660	13.0	5068
		DEPL	—	—	—	1	162	7.7	2099
	PA	PEPL	—	—	—	2	1700	24.7	6877
		PHEC	12	1946	25.2	2	782	10.1	7727
		WEPP	4	366	11.6	—	—	—	3150
	VA	VIEP	14	1950	21.2	2	1727	18.8	9192

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Table D-1 (Concluded)
Distribution of Oil-Fired Capacity Relative to Total Utility Capacity

Standard Federal Region	State	Utility Company	Coal Designed			Oil Designed			Total Utility Capacity ¹ (MW)
			Number of Units	Capacity (MW)	Percent of Total Utility Capacity	Number of Units	Capacity (MW)	Percent of Total Utility Capacity	
IV	FL	FLPL	—	—	—	25	7559	69.1	10941
		FLPC	—	—	—	8	1843	33.0	5584
		FOPL	—	—	—	1	56	45.2	124
		GAMW	—	—	—	1	83	65.9	126
		JACO	—	—	—	9	1692	79.2	2136
		LALW	—	—	—	3	282	73.4	384
		ORLA	—	—	—	3	639	90.1	709
		TALL	—	—	—	3	362	57.9	625
		TAEC	4	618	24.7	1	82	3.3	2505
		VEBM	—	—	—	1	56	43.4	129
	GA	GERC	6	365	3.5	—	—	—	10570
		SAEP	4	334	66.9	1	163	32.7	499
	MS	MIPR	—	—	—	1	548	27.9	1966
		MIPO	1	281	10.0	—	—	—	2789
	SC	SOCG	—	—	—	1	633	17.3	3661
		SOCA	2	100	6.5	—	—	—	1538
V	IL	COEC	4	692	3.7	6	2649	14.3	18569
		ILPC	3	150	3.9	—	—	—	3815
		GEIP	—	—	—	1	200	7.7	2582
		UNEC	4	394	5.9	—	—	—	6703
	IN	INME	—	—	—	2	218	5.4	4056
	MI	COPR	6	348	5.3	2	1237	19.0	6523
		DEEC	12	1604	17.3	1	158	1.7	9261
		DETR	1	50	24.5	—	—	—	204
	MN	INPD	1	81	10.5	—	—	—	771
	OH	CIGE	2	130	3.5	—	—	—	3757
		CLEI	9	508	10.8	—	—	—	4695
	WI	WEIP	2	120	2.9	—	—	—	4102
VI	AR	ARPL	4	1042	32.5	4	890	27.8	3202
	LA	GUSU	—	—	—	1	592	10.8	5500
		LOPI	1	446	9.2	—	—	—	4830
	NM	ELPE	—	—	—	3	266	27.1	982
	TX	HOLP	—	—	—	2	1196	10.3	11603
		SOEP	—	—	—	1	50	—	2803
VIII	CO	PSCO	1	75	3.1	—	—	—	2427
	SD	NOSW	—	—	—	1	75	0.8	9042
IX	AZ	ARPS	—	—	—	6	588	21.0	2796
		SARV	—	—	—	4	465	17.2	2700
		TUGE	—	—	—	5	563	37.9	1487
	CA	BRUB	—	—	—	1	60	24.2	248
		GLPS	—	—	—	2	100	37.3	268
		IMID	—	—	—	2	132	33.8	391
		LOAN	—	—	—	17	2866	40.3	7116
		PAGE	—	—	—	35	7395	67.4	10974
		PASA	—	—	—	2	125	46.0	272
		SADG	—	—	—	12	1877	77.4	2425
		SOCE	—	—	—	38	8946	60.8	14703

¹Total utility capacities were taken from "Electrical World Directory of Electric Utilities."

²50% owned by Canal Electric. Figure represents 50% of unit capacity.

³Units owned jointly by Central Hudson, Niagara Mohawk, and Con Edison. Data shown represents Central Hudson's share (20%).

⁴Jointly owned with Con Edison. Data shown represent Orange and Rockland share.

Appendix E

State Emission and Ambient Air Quality Standards

One of the major implications of fuel conversion in utility boilers is the potential impact on air quality as a result of burning increased quantities of coal. There are a number of Federal, state, and local laws which govern the type and amount of emissions from fuel burning equipment. In the preceding tables and appendices, federal regulations and the attainment status for each unit was reported. This appendix presents a compilation of those state and local regulations relevant to emissions from fossil fuel fired combustors.

The tables have been arranged according to Standard Federal Region, then alphabetically by the states in each region. AQCRs in each state containing units in the study are listed in parentheses under the state name. Emission limitation regulations for the

pollutants TSP and SO_x are presented in the next two columns. These regulations vary significantly from state to state and even within particular states. The standard basis for determination of allowable emission levels is the heat input rate (HIR) of the fuel being burned. This is expressed in millions of British thermal units per hour (MMBtu/hr or 10⁶ Btu/hr). Fuel sulfur content restrictions, if any, follow the emission limitations. Sulfur content restrictions are expressed as a maximum percentage of sulfur allowed in any given type of fuel. Emission reduction systems (FGD) may also be required as part of these regulations. State ambient air quality standards, if different from Federal Standards (NAAQS), are specified in the final column.

Table E.1
State Emission and Ambient Air Quality Standards

Federal Region I					
State (AQCRs)	Emission Limitations			Fuel Sulfur Restrictions % by Weight	State Air Quality Standards ¹ μg/m ³
	Heat Input Rate 10 ⁶ Btu/hr	TSP lb/10 ⁶ Btu	SO ₂ lb/10 ⁶ Btu		
Connecticut (4,42,43)		Existing: 0.20 New*: 0.10 *Constructed after May 23, 1972	0.55 - (With Control)	0.5%	SAN
Maine (110)	≥3≤10 >10≤120 >120	0.60 0.60-0.30 0.30		AQCR 110: 1.5%	Stricter than National Secondary SO _x : 3 hr: 1,150 24 hr: 230 Annual: 57 Particulates: Annual: 50 24 hr: 100
Massachusetts (42,119,120)	≥3≤250 >250	New: 0.10 Exist: 0.15 Exist*: 0.12 0.05 0.15 0.12 *All boilers in this study are in this class.	Coal or Residual Oil: Boston area-0.28 All others-0.55 Distillate Oil: All Areas-0.17	1.0% S Fuel Oil 0.5% in Boston Area (AQCR 119)	SAN
New Hampshire (121)	≤10 50 500 1,000 2,500 5,000 7,500 ≥10,000	Existing: (Jan. 70) 0.60 0.46 0.31 0.28 0.24 0.22 0.20 0.19 New*: 0.60 0.40 0.35 0.10 0.10 0.10 0.10 0.10	Coal: Existing 2.8 New 1.5	Oil: #2 0.4% #4 1.0% #5, #6 2.0%	National Secondary Standards are State Primary Standards for SO _x and TSP
*Constructed after Feb. 18, 1972					

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Table E.1 (Continued)
State Emission and Ambient Air Quality Standards

Federal Region I (concluded)					
State (AQCRs)	Emission Limitations			Fuel Sulfur Restrictions % by Weight	State Air Quality Standards ¹ µg/m ³
	Heat Input Rate 10 ⁶ Btu/hr	TSP lb/10 ⁶ Btu	SO ₂ lb/10 ⁶ Btu		
Rhode Island (120)	≥1<250 ≥250	0.20 0.10	All Fuels: 0.55 With Con- trol: 0.1	—	SAN
Federal Region II					
New Jersey (43,45,150,151)	1 50 100 200 1,000 10,000	0.6 11.0 15.0 20.0 100.0 1,000.0	Oil: 0.3 Coal: Cape May and Hunterdon Counties: Bituminous w/ FGD: 1.5 Anthracite w/ FGD: 1.0	Oil: #2 0.2% #4 0.3% #5-6 0.3% Coal: Cape May and Hunterdon Counties: Bituminous: 1.0% Anthracite: 0.7% All others: 0.2%	SAN
New York (43,158,161)	Oil: ≥50≤250 >250 Coal: ≥1≤10 50 100 500	0.20 0.10 0.60 0.44 0.37 0.26	New York City: Solid Fuel 0.2 Distillate Oil- Other Oils - Nassau, Rockland & Westchester counties: Solid Fuel 0.2 Oil- Suffolk County: Solid Fuel 0.6 Oil- Rest of State: Solid Fuel 2.5 max. 1.9 avg. Oil-	0.2% 0.3% 0.37% 1.0% 2.0%	Particulates: Primary 24 hour: 250 All others: SAN
Federal Region III					
Delaware (945, 46)	—	Does not Apply When HIR ≤ 1 × 10 ⁶ Btu/hr Otherwise - 0.30	New Castle: County: 0.90 Kent & Sussex Counties: 1.20	New Castle County: Fuel Oil: 0.30 All others: 1.0 or Emission Control Equiva- lent to above limits	Particulates: Primary - Annual: 70 24 hr: 200 Sulfur Oxides: 24 hr: 340 Carbon Monoxide: 9.2 mg/m ³ 35 mg/m ³ Hydrocarbons: 131
District of Columbia (47)	≤3.5 >3.5≤10 >10≤100 >100≤1000 >1000≤10,000	0.13 0.10 0.07 0.04 0.02	N/A	All Fuel: 0.5%	SAN

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Table E.1 (Continued)
State Emission and Ambient Air Quality Standards

Federal Region III (concluded)					
State (AQCRs)	Emission Limitations			Fuel Sulfur Restrictions % of Weights	State Air Quality Standards ¹ µg/m ³
	Heat Input Rate 10 ⁶ Btu/hr	TSP lb/10 ⁶ Btu	SO ₂ lb/10 ⁶ Btu		
Maryland (47, 114, 115)	AQCRs 47, 115:		Solid Fuels:		Particulates:
	Solid Fuel: ≤200	0.050 gr/SCFD	(HIR >100×10 ⁶		24 hr: 160
	>200	0.030 gr/SCFD	Btu/hr)		Sulfur Oxides:
	Residual Oil: ≤10	0.030 gr/SCFD	AQCR's 47, 115:	1.0%	Annual: 79
	>10≤50	0.025 gr/SCFD	AQCR 114: 3.5		24 hr: 262
	>50≤200	0.020 gr/SCFD	Residual Oil:		
	>200 Existing	0.020 gr/SCFD	47, 115:	1.0%	
	New (1/72)	0.010 gr/SCFD	114:	2.0%	
	Distillate Oil	No Limit	Distillate Oil:	3.0%	
	AQCR 114:				
	Existing: ≤10	0.60			
	>10≤10,000	0.60-0.12			
Pennsylvania (45, 151, 197)	>10,000	0.12			
	New (1/72):				
	Solid fuel:	0.03 gr/SCFD			
	Distillate Oil:	No Limit			
	Residual Oil:	Same as Above			
	City of Philadelphia				
	Existing Sources:	0.20 lb/10 ³ lb stack		Oil:	SAN
		gas		#2 0.5%	
	New Sources:	0.10 lb/10 ³ lb stack		#4-6 2.8%	
		gas			
	Allegheny County:				
	>0.20≤50	0.40			
Virginia (47, 223, 225)	>50≤850	0.40-0.08			
	>850	0.08			
	Other:				
	≤1≤50	0.40	Site Dependent ²		
	>50≤600	≤0.40≤0.10			
	>600	0.10			
	AQCR 47:		Formula ³	—	SAN
	≤100	0.30			
	≤100≤10,000	<0.30≤0.10			
	>10,000	<0.10			
	AQCR's 223, 225:				
	≤10	0.60			
Florida (5, 48, 49, 50, 51 52)	>10≤10,000	<0.60≤0.10			
	≥10,000	0.10			
Federal Region IV					
Georgia (49, 56, 58)	≤250	"Latest Technology" ⁴	"Latest Technology" ⁵	—	National Secondary Standards for Particulates and Sulfur Oxides are State Primary Standards
	>250	0.1	Site Dependent ⁴		
Mississippi (5, 134)		Existing: (pre-1972)	New:	HIR < 100 × 10 ⁶ Btu/hr	
	≤10	0.70	0.50	2.5%	
	>10≤2000	0.70-0.24	0.50-0.10	HIR >100×10 ⁶ Btu/hr	
	>2000	0.24	0.10	3.0%	SAN
Mississippi (5, 134)				Atkinson Plant	
				No. 2 Oil:	
				0.20%	
Mississippi (5, 134)	≤10	0.60	New (1/72) and	—	SAN
	>10 ≤ 10,000	0.60-0.20	HIR		
	>10,000	0.20	≥250 × 10 ⁶		
			Btu/hr: 2.4		
Mississippi (5, 134)			General: 4.8		

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Table E.1 (Continued)
State Emission and Ambient Air Quality Standards

Federal Region IV (concluded)						
State (AQCRs)	Emission Limitations			Fuel Sulfur Restrictions % by Weight	State Air Quality Standards ¹ μg/m ³	
	Heat Input Rate 10 ⁶ Btu/hr	TSP lb/10 ⁶ Btu	SO ₂ lb/10 ⁶ Btu			
South Carolina (199)	≤10 ≥10	Existing: 0.8 New: 0.6	3.5	—	SAN	
Federal Region V						
Illinois (67,70,75)		AQCR 67 (Metro Chicago): 0.10 (0.20 for coal) All Other AQCRs: 1.0 (0.20 for coal) 1.0-0.10 0.10	≤250 x10 ⁶ Btu/hr: Coal: 1.8 Residual Oil: 1.0 Distillate Oil: 0.30 >250 x10 ⁶ Btu/hr: Coal: 1.2 Residual Oil: 0.80 Distillate Oil: 0.30	—	SAN	
Indiana (82)	Coal: ≤25 >25≤250 >250 All Oils:	 0.60 0.35 0.10 0.15	Coal: 1.2 Oil: 0.80	—	SAN	
Michigan (123,124,125)	Regulation Based Upon Steam Rate (in 1000 lbs/ hour): ≥1≤100 >100≤1000 >1000	 0.30 0.30-0.19 0.19		Plant Capacity ≤500,000 lb steam/ hr: 1.5% >500,000 lb steam/ hr: 1.0% Wayne County (AQCR 123): Pulverized Coal: 1.0% Other Coal: 0.5% Residual Oil: 0.7% Distillate Oil: 0.3%	SAN	
Minnesota (128)	Existing: ≤250 >250 New: ≤250 >250	0.60 0.60 0.40 0.40	Solid Fuel: 4.0 4.0 4.0 1.2	Liquid Fuel: 2.0 2.0 2.0 0.8	HIR>250 x10 ⁶ Btu/hr: 2.0%	Sulfur Oxides: 3 hour secondary 655 Photochemical Oxidants: 1 hour maximum 130 Carbon Monoxide: 1 hour maximum 35 mg/m ³
Ohio (79,174)	≤10 >10≤1000 >1000	0.40 0.40-0.10 0.10		—	National Secondary Standards Are State Primary Standards	
Site Dependent ⁶						

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Table E.1 (Concluded)
State Emission and Ambient Air Quality Standards

Federal Region V (concluded)					
State (AQCRs)	Emission Limitations			Fuel Sulfur Restrictions % by Weight	State Air Quality Standards ¹ µg/m ³
	Heat Input Rate 10 ⁶ Btu/hr	TSP lb/10 ⁶ Btu	SO ₂ lb/10 ⁶ Btu		
Wisconsin (239)	Existing:	0.15	Existing Sources: No Limit	—	SAN
	New: ≤250	0.15	New or Modified: (after 4/72)		
	>250	0.10	Solid: 1.2 Liquid: 0.8		
Federal Region VI					
Arkansas (16,20)	—	Opacity Only	—	—	SAN
Louisiana (106)	—	0.6	2,000 ppm (in exhaust gas)	—	SAN
New Mexico (153)	Coal:	0.05	0.34	65% Control of input sulfur	National Secondary Standards Are State Primary Standards
	Oil:	Existing (pre-1971): 0.20 New: 0.03			
Texas (22,216)	—	Oil or Gas: 0.1 Solid Fuel: 0.3	AQCR 216: Solid Fuel: 3.0 Liquid Fuel: 440 ppm	—	SAN
Federal Region VIII					
Colorado (36)	≤1 ≥10 100 ≥500	0.50 0.27 0.15 0.10	Coal: ≤250 1.2 >250 0.40 Oil: ≤250 0.80 >250 0.30	—	SAN (Special for City of Denver)
South Dakota (87)	≥250	0.10	3.0	—	SAN
Federal Region IX					
Arizona (13,15)	—	Formula	Existing: 1.0 New: 0.80	—	SAN
California (24,25,26,29, 30,31,32,33)	—	Site Dependent ⁷	Site Dependent ⁷	Site Dependent ⁷	See Footnote ⁸

Footnotes

1. State or local standards which are more stringent than federal standards are listed in this column. "SAN" indicates that applicable state standards are the same as the National Ambient Air Quality Standards. The unit of measurement for these standards is $\mu\text{g}/\text{m}^3$ (micrograms per cubic meter) unless otherwise specified.
2. Emission and fuel content regulations for sulfur and sulfur oxides for the State of Pennsylvania vary in different regions within the state. These regions are generally known as "air basins." For a complete list of air basin boundaries and corresponding emission regulations, see Pennsylvania Air Pollution Control Regulations, General Provisions, Standards for Contaminants: Sulfur Compounds; Pennsylvania Code, Title 25, Part I—Department of Environmental Resources, Chapters 121-141, July 1979.
3. Sulfur oxide emissions for fossil fuel fired combustion units are determined by a formula based upon heat input rate. For further details, see Emission Standards for Gaseous Pollutants, State Air Pollution Control Board Regulations for Control and Abatement of Air Pollution, Part IV, Rule Ex-S, Section 4.51: Sulfur Oxide Emissions.
4. The Florida State Implementation Plan (SIP) requires the "latest available control technology" for emissions from fuel burning equipment. See Section 17-2.05, Florida Air Pollution Rules, Rules of the Florida Department of Environmental Regulation.
5. Florida regulations for sulfur oxide emissions from fossil fuel fired steam generators with a heat input rate (HIR) greater than 250 million Btus per hour (MM Btu/hr) vary depending upon location, fuel type, and the date of construction. A complete table of emission rates is contained in Florida Air Pollution Rules, Rules of the Florida Department of Environmental Regulation, Chapter 17-2, Air Pollution.
6. Emission regulations for fossil fuel-fired steam generating units with an HIR greater than 10 MM Btu/hr vary from county to county. Limits have also been set for specific electric power plants. Complete regulations are given in the Ohio SIP.
7. California emission regulations are determined for specific pre-defined areas known as air basins. Both emission limitations and fuel sulfur content restrictions vary with location. A complete list can be found in California Air Pollution Control Regulations, California Administrative Code, Title 17, Public Health, Part III, Air Resources.
8. Air Quality Standards for the State of California differ from the Federal Standards in both the number and permissive levels of regulated pollutants. A table of standards appears in Subchapter 1.5: Air Basins and Air Quality Standards, California Air Pollution Regulations.

Appendix F

Distribution of Oil-Fired Utility Boiler Age and Size by Standard Federal Region

Tables F.1 and F.2 show a distribution of oil-fired boiler capacity by boiler age and size for coal-designed and oil-designed boilers, respectively. Age and size distributions are shown separately for each of the Standard Federal Regions.

Table F.1
Age and Size Distribution of Coal-Designed Boilers

Federal Region I											
Size Interval (MW)											
	≤100		>100≤200		>200≤300		>300≤400		>400		Total
	No.	MW	No.	MW	No.	MW	No.	MW	No.	MW	No. MW
Age Interval (Years)											
≤10			1	170			1	358	1	643	3 1,171
>11≤20			7	1,079	3	721	2	780	1	572	13 3,152
>20≤30	13	854	5	561							18 1,415
>30											
Total	13	854	13	1,810	3	721	3	1,138	2	1,215	34 5,738
Federal Region II											
Size Interval (MW)											
	≤100		>100≤200		>200≤300		>300≤400		>400		Total
	No.	MW	No.	MW	No.	MW	No.	MW	No.	MW	No. MW
Age Interval (Years)											
≤10					1	202			1	535	2 737
>11≤20	1	75	4	698	1	239	6	2,176	2	1,483	14 4,671
>20≤30	13	885	24	3,336							37 4,221
>30	9	634	7	863							16 1,497
Total	23	1,594	35	4,897	2	441	6	2,176	3	2,018	69 11,126
Federal Region III											
Size Interval (MW)											
	≤100		>100≤200		>200≤300		>300≤400		>400		Total
	No.	MW	No.	MW	No.	MW	No.	MW	No.	MW	No. MW
Age Interval (Years)											
≤10											
>11≤20			5	879	3	687					8 1,566
>20≤30	10	688	13	1,895	1	230					24 2,813
>30	16	996	2	346							18 1,342
Total	26	1,684	20	3,120	4	917					50 5,721

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Table F.1 (Concluded)
Age and Size Distribution of Coal-Designed Boilers

Federal Region IV											
Size Interval (MW)											
	≤100		>100≤200		>200≤300		>300≤400		>400		Total
	No.	MW	No.	MW	No.	MW	No.	MW	No.	MW	No. MW
Age Interval (Years)											
≤10			1	126					1	781	2 907
>11≤20	1	75	2	368							3 443
>20≤30	3	150	2	250							5 400
>30	4	240									4 240
Total	8	465	5	744					1	781	14 1,990
Federal Region V											
Size Interval (MW)											
	≤100		>100≤200		>200≤300		>300≤400		>400		Total
	No.	MW	No.	MW	No.	MW	No.	MW	No.	MW	No. MW
Age Interval (Years)											
≤10			4	692			1	358			8 1,269
>11≤20	3	219			1	283	1	358			11 1,237
>20≤30	9	596									25 1,521
>30	25	1,521									44 4,027
Total	37	2,336	4	692	1	283	2	716			
Federal Region VI											
Size Interval (MW)											
	≤100		>100≤200		>200≤300		>300≤400		>400		Total
	No.	MW	No.	MW	No.	MW	No.	MW	No.	MW	No. MW
Age Interval (Years)											
≤10									1	446	1 446
>11≤20							1	359	1	545	2 904
>20≤30	2	138									2 138
>30											
Total	2	138					1	359	2	991	5 1,488
Federal Region VIII											
Size Interval (MW)											
	≤100		>100≤200		>200≤300		>300≤400		>400		Total
	No.	MW	No.	MW	No.	MW	No.	MW	No.	MW	No. MW
Age Interval (Years)											
≤10											
>11≤20											
>20≤30	1	75									1 75
>30											
Total	1	75									1 75

Table F.2
Age and Size Distribution of Oil-Designed Boilers

Federal Region I											
Size Interval (MW)											
	≤100		>100≤200		>200≤300		>300≤400		>400		Total
	No.	MW	No.	MW	No.	MW	No.	MW	No.	MW	No. MW
Age Interval (Years)											
≤10							3	1,088	6	2,939	9 4,027
>11≤20			1	121							1 121
>20≤30											
>30											
Total			1	121			3	1,088	6	2,939	10 4,148
Federal Region II											
Size Interval (MW)											
	≤100		>100≤200		>200≤300		>300≤400		>400		Total
	No.	MW	No.	MW	No.	MW	No.	MW	No.	MW	No. MW
Age Interval (Years)											
≤10	1	93	1	163			2	774	6	4,212	10 5,242
>11≤20							5	1,963			5 1,963
>20≤30					2	520					2 520
>30											
Total	1	93	1	163	2	520	7	2,737	6	4,212	17 7,725
Federal Region III											
Size Interval (MW)											
	≤100		>100≤200		>200≤300		>300≤400		>400		Total
	No.	MW	No.	MW	No.	MW	No.	MW	No.	MW	No. MW
Age Interval (Years)											
≤10			2	296	1	289	2	782	7	4,947	12 6,314
>11≤20					1	289					1 289
>20≤30											
>30	1	55									1 55
Total	1	55	2	296	2	578	2	782	7	4,947	14 6,658
Federal Region IV											
Size Interval (MW)											
	≤100		>100≤200		>200≤300		>300≤400		>400		Total
	No.	MW	No.	MW	No.	MW	No.	MW	No.	MW	No. MW
Age Interval (Years)											
≤10	4	270	3	392	2	535	1	344	11	6,259	21 7,800
>11≤20	4	272	4	591	5	1,195	2	620	5	2,010	20 4,688
>20≤30	11	755	5	757							16 1,512
>30											
Total	19	1,297	12	1,740	7	1,730	3	964	16	8,269	57 14,000

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Table F-2 (Concluded)
Age and Size Distribution of Oil-Designed Boilers

Federal Region V										
Size Interval (MW)										
	≤100		>100≤200		>200≤300		>300≤400		>400	
	No.	MW	No.	MW	No.	MW	No.	MW	No.	Total MW
Age Interval (Years)	≤10		1	200				7	3,886	8 4,086
	>11≤20		1	158						1 158
	>20≤30		1	133						1 133
	>30	1	85							1 85
	Total	1	85	3	491			7	3,886	11 4,462
Federal Region VI										
Size Interval (MW)										
	≤100		>100≤200		>200≤300		>300≤400		>400	
	No.	MW	No.	MW	No.	MW	No.	MW	No.	Total MW
Age Interval (Years)	≤10		1	166				4	2,340	5 2,506
	>11≤20									
	>20≤30	4	219	2	269					6 488
	>30									
	Total	4	219	3	435			4	2,340	11 2,994
Federal Region VIII										
Size Interval (MW)										
	≤100		>100≤200		>200≤300		>300≤400		>400	
	No.	MW	No.	MW	No.	MW	No.	MW	No.	Total MW
Age Interval (Years)	≤10									
	>11≤20	1	75							1 75
	>20≤30									
	>30									
	Total	1	75							1 75
Federal Region IX										
Size Interval (MW)										
	≤100		>100≤200		>200≤300		>300≤400		>400	
	No.	MW	No.	MW	No.	MW	No.	MW	No.	Total MW
Age Interval (Years)	≤10				1	240	2	626	3	2,363 6 3,229
	>11≤20	8	539	9	1,214	10	2,212	14	4,790	6 3,604 47 12,359
	>20≤30	20	1,363	38	5,042	2	436			60 6,841
	>30	10	680	1	108					11 788
	Total	38	2,582	48	6,364	13	2,888	16	5,416	9 5,967 124 23,217